The ADVERTISERS' INDEX

A

Ajax Iron Works
Alco Products, Inc.
Allegheny Steel Co.
Allis-Chalmers Mfg. Co.
Allis, Louis, Co., The
Allsteel Products Mfg. Co., Inc., The.
American Cable Co., Inc.
American Cast Iron Pipe Co.
American Iron & Machine Works Co..
American Meter Co.
American Radiator Co.
American Rolling Mill Co., The
American Sheet & Tin Plate Co.
American Steam Pump Co.
American Steel & Wire Co.
American Tank & Equipment Corp...
American Well Works, The
Anchor Post Fence Co.
Apex Regulator Co.
Armstrong Machine Works
Athey Truss Wheel Co.
Automotive Distillate Corp.
Axelson Mfg. Co., Ltd.
Ayer & Lord Tie Co.

B

Badger, E. B., & Sons Co.
Baker Oil Tools, Inc.
Barber-Greene Co.
Baroid Sales Co.
Barnsdall Refineries, Inc.
Barrett Co., The
Barret, William M., Inc.
Bethlehem Steel Co. 2
Big Lake Oil Co.
Bigelow-Liptak Corp.
Bignall & Keeler Machine Works.... 50
Black, Sivalls & Bryson, Inc.
Blair, C. E.
Bradford Motor Works, Inc.
Brauer Machine & Supply Co.
Braun, C. F., & Co.
Brewster Co., Inc., The 1
Bridgeport Machine Co.
Bristol Co., The
Broderick & Bascom Rope Co.
Brown Instrument Co.
Buckeye Traction Ditcher Co.
Butler Mfg. Co.
Byers, A. M., Co.
Byron Jackson Co.....Back Cover

C

Carey, Philip, Co., The
Caterpillar Tractor Co.
Chain Belt Co.
Chaplin-Fulton Mfg. Co., The 61
Chapman Valve Mfg. Co., The
Chicago Bridge & Iron Works
Clark Brothers
Classified Wants 64-65
Cleveland Trencher Co., The
Clifford, James E., Co.
Columbian Steel Tank
Columbus Forge & Iron Co., The.... 92
Continental Supply Co., The 4-A
Cooper-Bessemer Corp., The
Corona Products, Inc.
Crane Co. 39

D

Darling Valve & Mfg. Co.
Dart, E. M., Mfg. Co.
Davey Compressor Co.
Davis Regulator Co.
Dearborn Chemical Co.

D

De La Vergne Engine Co.
Devine, J. P., Mfg. Co.
Dixon Crucible Co., Joseph 92
Dodge Brothers Corp.
Donovan Boiler Works, Inc.
Dresser, S. R., Mfg. Co. 17
Driftmeter, Inc.

E

Eagle-Picher Lead Co.
East Texas Refining Co.
Economy Electric Lantern Co.
Economy Pump & Tool Co., The
Edward Valve & Mfg. Co., The
Empire Oil & Refining Co.
Ethyl Gasoline Corp.
Exchange Banks of Tulsa

F

Falk Corp., The
Fenwick-Reddaway Mfg. Co.
Fisher Governor Co.
Foster Wheeler Corp.
Foxboro Co., Inc., The 79
Franklin Valveless Engine Co.
Frick-Reid Supply Corp. 21

G

Garlock Packing Co., The
Gaso Pump & Burner Mfg. Co.....
.....Inside Back Cover
Gates Rubber Co.
General American Tank Car Corp.
General Electric Co. 36
General Paint Corp.
Globe Oil Tools Co.
Goodrich, B. F., Rubber Co., The
Goodyear Tire & Rubber Co.
Gott, H. P., Mfg. Co., Inc.
Goulds Pumps, Inc.
Graver Tank Mfg. Corp.
Gray Processes Corp., The
Griscom-Russell Co., The
Guiberson Corp., The
Gulf Refining Co. 52

H

Halliburton Oil Well Cementing Co.. 3
Hazard Wire Rope Co.
Hedges-Walsh-Weidner Co., The
Heeter, Sons & Co., Inc., C. M.
Hercules Motors Corp.
Hercules Supply Co.
Hercules Tool Co.
Heydrick Mapping Co.
Highland Iron & Steel Co., The
Hill-Hubbell & Co.
Hope Engineering Co. 33
Hughes Tool Co. .....Front Cover
Humble Oil & Refining Co.

I

Industrial Dallas, Inc.
International Derrick & Equipment Co.
International Harvester Co. of America
International-Stacey Corp.
International Supply Co.

J

Jackson Co., Byron.....Back Cover
Jackson Engineering Corp.
Jarecki Mfg. Co.
Jenkins Bros.
Jerguson Gage & Valve Co. 93
Johns-Manville Corp.
Jones & Laughlin Steel Corp.

K

Kellogg, M. W., Co., The 47
Kennedy Valve Co., The
Kerotest Mfg. Co.
Key Boiler Equipment Co.
Kirk-Morrow Iron Works, Inc.

L

Landis Machine Co., Inc.
Layne & Bowler Co. 29
Leader Iron Works, Inc.
Leeds & Northrup Co.
Leonard Construction Co.
Lincoln Electric Co...Inside Front Cover
Linde Air Products Co.
Longyear, E. J., Co.
Ludlow Valve Mfg. Co.
Lufkin Foundry & Machine Co., The
Lummus Co., The
Lunkenheimer Co., The

Mc

McClintic-Marshall Corp.
McCord Radiator & Mfg. Co.
McIntosh & Seymour Corp.
McKee, Arthur G., & Co.

M

MacClatchie Mfg. Co.
MacWhyte Company
Magnolia Petroleum Co.
Mair, D. S., Machinery Corp.
Maloney Tank Mfg. Co.
Marsh Gauge Pole Co.
Martin-Decker Corp.
Mason Regulator Co.
Mathieson Alkali Works, Inc., The..
Merco Nordstrom Valve Co.
Metric Metal Works
Midwest Piping & Supply Co., Inc.
Mine Safety Appliance Co.
Moloney Electric Co.
Moon Mfg. Co., The
Moore, Lee C., & Co., Inc.
Moorlane Co., Inc.
Moser Manufacturing Co.
Munn & Co. 92
Murdock Mfg. & Supply Co., The

N

National Equipment Corp.
National Lead Co.
National Supply Co. 23
National Tank Co.
National Transit Pump & Machine Co.
National Tube Co.
Naylor Pipe Co.
Neilan Co., Ltd.
North American Car Corp.
Northwest Engr. Co.

O

Oakite Products, Inc.
Oil and Gas Journal, The 76
Oil Conservation Engineering Co.
Oil Equipment Engr. Expo.
Oil Well Supply Co.

P

Page Fence Assn.
Page Steel & Wire Co.
Paraffine Companies, Inc., The
Parkersburg Rig & Reel Co., The
Patterson-Ballagh Corp.
Penberthy Injector Co.
Petroleum Engineering, Inc.
Petroleum Equipment Co.
Petroleum Iron Works Co.
Petroleum Rectifying Co.
Pickering Governor Co., The

P

Pittsburgh Equitable Meter Co.
Pittsburgh-Des Moines Steel Co.
Pittsburgh Steel Products Co. 24
Plymouth Cordage Co.
Pomona Pump Co.
Powell, William, Co.
Power Mfg. Co., The
Power Piping Co.
Prescott Co., The
Public Service Co.
Pure Oil Co., The 4

R

Reading Iron Co.
Reading-Pratt & Cady Co., Inc.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Steel Corp. 49
Republic Supply Co.
Robinson Orifice Fitting Co.
Roebling's, John A., Sons Co. 69
Ross-Meehan Foundries Co.

S

St. Louis Cordage Mills 71
Shaffer Tool Works
Sherwin-Williams Co.
Smooth-On Mfg. Co. 61
South Chester Tube Co.
Southern States Co., The
Southern Electric & Transmission Co.
Southwestern Construction Corp.
Spang, Chalfant & Co., Inc.
Sperry-Sun Well Surveying Co. 73
Stoody Co.
Sureshot Torpedo Co.

T

Taylor Forge & Pipe Works
Technical Products, Inc.
Texas Electric Service
Texas Steel Co.
Timken Michigan Co., The 70
Timken Roller Bearing Co., The
Titusville Iron Works Co.
Toledo Pipe Threading Machine Co... 61
Trackson Co.
Tretolite Co.
Trimont Mfg. Co.
Truman Smith Const. Co., The
Truscon Steel Co.
Tube Turns, Inc.

U

Union Wire Rope Co.
United Engineers & Constructors
United States Steel Corp.
Universal Oil Products Co. 15

V

Vacuum Oil Co., The
Vellumoid Co., The
Vogel, Felix A.
Vogt, Henry, Machine Co.

W

Wagner Electric Corp.
Wailes Dove-Hermiston Corp.
Warren Petroleum Co.
Westco Pump Corp.
Westinghouse Electric & Mfg. Co., The
Wheeling Steel Corp.
Wickwire Spencer Steel Co.
Williamsport Wire Rope Co.
Winkler-Koch Engineering Co., The..
Worthington Pump & Machy. Corp...

Y

Youngstown Sheet & Tube Co., The..4-B

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Table of Contents

SPECIAL ARTICLES

Crude Oil Situation Shows Improvement 7
By Andrew M. Rowley
Higher price level for crude and gasoline absolutely necessary. Better postings expected soon.

Industry Must Raise Its Price Level 9
By Andrew M. Rowley
Fallacy of permitting makers of inferior products to set market shown in enormous losses.

New Petroleum Rates Become Effective 10
By C. O. Willson
Important changes at many points. Advances emphasize use of tank wagon, barge and pipe line.

No Dominant Field in United States 11
By James McIntyre
Present day big pools do not influence industry as some in past. No overproduction of oil.

Dangerous Gases in the Oil Industry 12-13
By C. K. Francis, Ph. D.
Explosive properties and nature of possible harmful influence described.

Unit Operation Succeeds in California 14
By L. G. E. Bignell
Experience of operators in Kettleman Hills field indicates many advantages under plan.

A. P. I. Refinery Report 14

Running Wild (Editorial) 16

Solid CO_2, Made at Gasoline Plant at Low Cost 18
By Hugh Lamberth

Geological Societies to Hold Meeting 19
By L. G. E. Bignell
Petroleum Geologists, Economic Paleontologists and Mineralogists and Geophysicists to meet.

Pipe Line Construction News 25

Modern Devices Feature New Grease Plant 26-27
By Bert H. Lincoln and P. S. Showell

Glen Rose Possibilities in Zwolle Area 43
By H. D. Easton
Deep sand gives promise over large area little tested.

Seek to Increase Recovery From Repressured Sands 43

Field Problems and Their Solution 45
Edited by Thomas F. Smiley

Benefits of Curtailment in East Texas 87
By James McIntyre

Gulf Port Shipments 89

Bureau of Mines Report For January 94

FIELD OPERATIONS

Late Fields 20

West Texas, North Texas and Panhandle 22
By L. E. Bredberg

East Texas 28
By L. E. Bredberg

Oklahoma 30
By W. A. Spinney

Kansas 31
By W. A. Spinney

North Louisiana-Arkansas, Mississippi 32
By J. R. Crumpton

Gulf Coast 34
By Neil Williams

Southwest Texas 35
By B. D. Stevenson

Canada 37
By Victor Lauriston

Rocky Mountain Area 37
By Tolbert R. Ingram

California 38
By L. P. Stockman

Michigan 40
By George A. Whitney

Central West 41
By George A. Whitney

Eastern Fields 41
By Staff Correspondent

REFINING AND MARKETING

Furnace Oils and Kerosene Strong 8
By C. O. Willson
Low gravity zero grades scarce in Oklahoma, strong demand. Natural gasolines higher. Refinery demand slow.

Technical Questions Answered 46
By C. K. Francis, Ph. D.

Expect Warm Weather to Aid Demand 66
By Robert C. Conine
Chicago has strong undertone awaiting seasonal improvement in consumption.

Markets Stronger in East Coast Area 67
By A. E. Mockler
Prices advance on high octane gasolines and steam refined stocks. Tariff factor.

Brief Items for Petroleum Refiners 77

Natural Gasoline Manufacture 78

Refinery and Crude Prices 80-81

Tank Wagon Quotations 82

Of Interest to Sales Departments 83

DEPARTMENTS OF GENERAL INTEREST

The Advertisers' Index 5

Personal Paragraphs About Oil Men 42

Natural Gas Developments 44

Oil Industry Equipment and Supples 48-51

Field Operations in February 53

Classified Want Advertisements 64-65

Oil Securities Market 84-85

Crude Petroleum Statistics 96

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Refinery Section Starts on Page 66

Crude Situation Shows Improvement

Highest production in 1931, week ending Aug. 8, average daily output 2,551,807 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Higher Price Level for Crude and Gasoline Absolutely Necessary. Better Postings Expected Soon

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1931 was for week ending Sept. 5 with average output of 1,736,007 bbls.

Further improvement in the crude oil situation is shown with the first week of Spring. This improvement strengthens the belief crude oil prices in the Mid-Continent area will be increased within the very near future, as predicted in this column last week. Crude oil production has been stabilized and a greater number of oil men are accepting the opinion "potential production" means little more than a price increase deterrent.

The petroleum industry is at the beginning of the season when consumption will show substantial gains. Some oil men have expressed the belief the demand for gasoline this year will be less than during 1931. But traveling by automobile has become second nature to the American people. And what may prove to be a significant indication of what may be expected is the fact numerous students along the Atlantic Seaboard are planning automobile trips to Los Angeles for the Olympic Games to be held there from July 30 to August 14. One large oil company in the Mid-Continent area, with widespread distribution, already has prepared itineraries at the request of persons in New York who intend to drive by automobile to California for the games.

The most important matter confronting the entire petroleum industry today is the absolute necessity of getting back to a profitable price basis. Increased gasoline consumption would only mean greater losses if the price basis is not raised and raised quickly above the level of 1931. Oil company executives have been unable to understand why some producers in East Texas could not see it was better to get twice as much money for one-third the quantity of oil produced, and yet these same executives have sacrificed gasoline prices for gallonage.

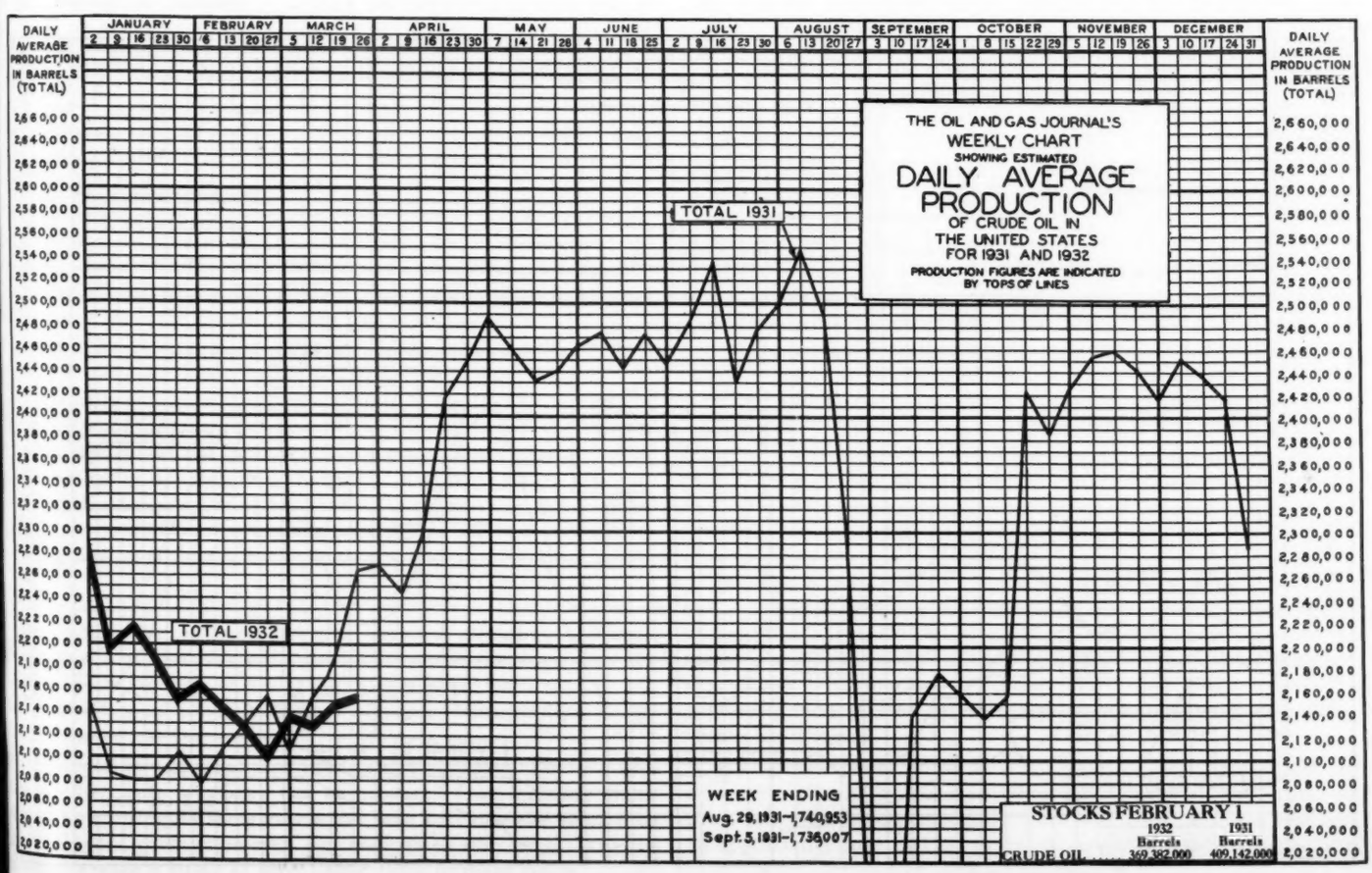
Gasoline and crude oil prices are too low and should be increased quickly to a point where producers and refiners show a profit on investment and operations. There need not be any fear of an intensive wildcat drilling campaign for even with a fair increase, crude oil prices still would be too low to attract oil men into spending large sums in such a hazardous undertaking.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for the week ended March 19 and a comparison with the previous week follows:

	Mar. 19	Mar. 12
Oklahoma—		
Oklahoma City	91,405	93,485
Seminole-St. Louis	121,065	119,510
Remainder of State	208,060	205,940
Total Oklahoma	420,530	418,935
East Texas—		
Kilgore	102,141	100,204
Lathrop	119,873	116,845
Joiner	107,550	106,563
Total East Texas	329,564	323,612
West Texas	179,796	182,076
North Central Texas	74,763	71,712
Texas Panhandle	47,035	47,685
East Central Texas	55,112	55,178
Gulf Coast Texas	101,520	101,564
Southwest Texas	58,046	58,445
Total Texas	845,836	840,272
Kansas	99,245	99,415
North Louisiana	27,280	28,245
Gulf Coast Louisiana	26,105	26,556
Arkansas	34,135	34,189
Eastern fields	114,000	115,000
Rocky Mountain area	81,587	82,842
California—		
Santa Fe Springs	66,500	66,450
Long Beach	81,000	79,500
Playa Del Rey	19,250	19,500
Elwood	16,250	16,750
Kettleman Hills	63,000	60,000
Remainder of State	261,000	263,300
Total California	507,000	505,500
Total United States	2,155,718	2,150,945

→ Increase 4,773 Bbls. Daily ←



Furnace Oils and Kerosene Strong

Low Gravity Zero Grades Scarce in Oklahoma With Strong Demand. Natural Gasolines Higher With Refinery Demand Slow

By C. O. Willson

Low cold test gas oils and kerosene were the strongest products of the Oklahoma (Group 3) refinery market over the past week. The 32-36 light or dark gas oil with a flash under 190 was in demand by several buyers of furnace oils who found the product scarce both for immediate shipment and delivery over the balance of the month. A price range of 1¾ to 2 cents was being maintained with more sales reported at the 1⅞ to 2-cent figure than at the lower price. Kerosenes were also moving in increased volume to the northern consumers and prices, which showed a tendency toward weakness earlier in the month, were again firm the first of the week.

Over the week, natural gasolines advanced one-eighth to one-fourth cent on the regular grades with an advance of one-fourth cent in the stabilized grades. Grade 26-70 was quoted on Monday and Tuesday at 1¾ to 2 cents and 18-55 at 2⅜ to 2⅝ cents. The stabilized grades under 12-pound vapor pressure were generally quoted at a price range of 3¼ to 5 cents.

The situation on the refinery grades of gasoline was not so favorable. New buying was not heavy last week and this dullness was even more apparent the first of the week when a cold wave apparently postponed some purchases which otherwise would have been placed. Reflecting this condition, the low octane U. S. Motor dropped from a low of 3½ cents to 3⅜ cents. The higher gravity gasolines regardless of octane rating although inactive were unchanged from last week in current quotations.

The fact that the refinery market has held as well as it has over the past 10 days is interpreted as an indication of strength rather than weakness by most market observers. Normally with as little spot demand as there has been, since early in the month the market would have sagged a half cent or more. Due to the more or less general curtailment of plant operations and the shutdown of several plants, relatively little gasoline is being forced on the market due to the slow demand. Most of the low-priced material is coming from resellers who made long purchases before the recent half-cent advance. With two or three exceptions refiners were not meeting these resale prices in any new business although a few have limited quantities of the U. S. Motor gasoline which they are offering at 3⅜ cents or higher quotations.

This is the season of the year which is a transitory period between winter and spring. Weather conditions are too unsettled to assure a steady increase in consumption which usually comes early in April. However, several of the trade have expressed the opinion that if the spot market is held near its present levels over the next few days, that the development will be interpreted as an indication of the inherent strength of the gasoline market and there will be considerable buying for storage purposes. Despite the low prices that prevailed over the winter months, salesmen who cover the middle western area state that jobber storage is less than usual for this season of the year.

Higher Prices Necessary

The position taken by one refiner probably is representative of several small and large refiners who are accustomed to sell all or a part of their output on the spot market. "I will either get better prices for my gasoline or shut down my plant," said this refiner. "This proposition of operating a refinery to furnish an outlet for crude oil and selling refined products below the cost of production must stop."

Anyone familiar with refinery operations in the Mid-Continent Field knows that this refiner said the proverbial "mouthful" in one sentence in pointing out a fundamental condition. The shutdown of several plants over the past few months is a reflection of this lopsided situation in which the average refiner has been unable to secure a profit or break even between the price paid for crude oil and returns from the refined products at his plant. The fact that this condition is nearing the breaking point is probably the most important single development pointing to a general recovery in refinery prices over the next few weeks. So far as

(Continued on Page 90)

REFINED MARKET BAROMETER

The expectation that a tax will become effective on imported petroleum products was a factor in refined markets during the past week. Although there is still no certainty that such a tax will be levied by Congress the expectation was said to be responsible for a better tone in Coastal markets, particularly the heavy oils. Bunker fuel oils which for several months have been at the lowest price levels in the history of the industry are stronger at East Coast and Gulf Coast points. The interior market on these products is also strong. Price changes in refinery gasolines were local in scope with no developments pointing to a general change either up or down. Natural gasolines advanced in the Mid-Continent. Kerosene, tractor fuel and furnace oils were unchanged with fair to strong demand reported in the several refining areas. The only important price advance reported in lubricants was higher prices in cylinder stocks for export movement. Wax prices unchanged.

Mid-Continent—Natural gasolines advance. Refinery gasoline demand slow. Kerosene and furnace oils firm. Fair demand for industrial fuel and gas oil. Lubricants unchanged.

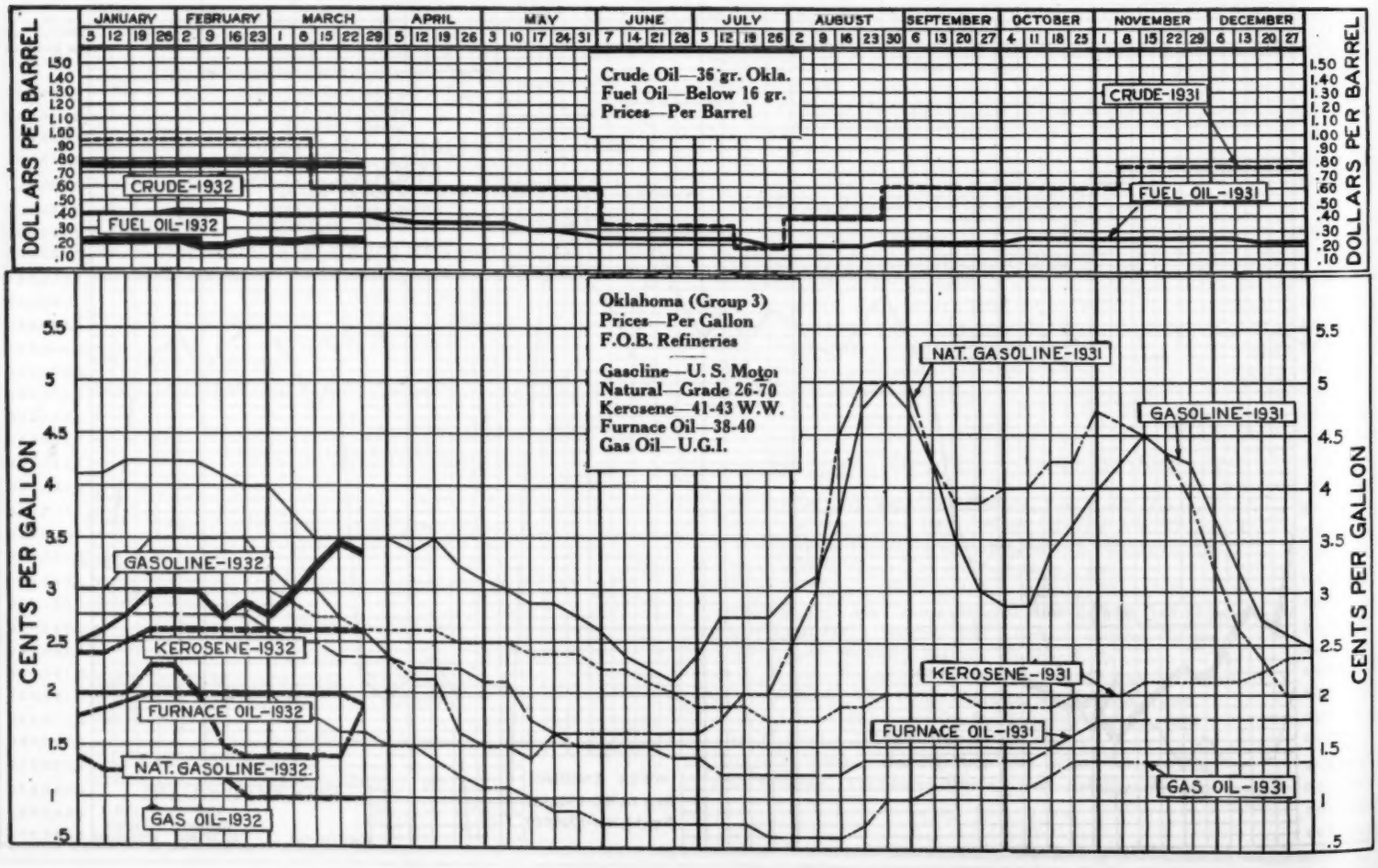
East Coast—Better feeling in regard to tank car markets. Price situation in higher octane gasoline strong. More activity in fuel oil and gas oil due in part to proposed import tax. Kerosene firm. Higher prices on some grades of steam refined stocks. Wax unchanged.

Chicago—Gasoline market marks time awaiting seasonal gain in demand. Special naphthas advance. Kerosene unchanged. Strong demand for low cold test and high gravity fuels. Some grades of furnace oils easier.

Pennsylvania—Good movement in kerosene. Gasoline slow. Lubricants firm.

Gulf Coast—Market generally slow except more inquiries for fuel oil and gas oil.

California—Better movement of gasoline with no change in prices.



Oil Industry Must Raise Its Price Level

Fallacy of Permitting Makers of Inferior Products to Set Market for All Is Shown in Enormous Losses Sustained Last Year

By Andrew M. Rowley

The time has come when oil companies who expect to remain in business must revise their policies. Annual statements being made public show enormous losses incurred during 1931. These losses were not due to any falling off in business. Domestic sales of gasoline during 1931 actually registered an increase of 2.1 per cent over 1930 and a greater percentage over 1929. The losses were due to failure of the companies to procure an adequate price for their products.

More than 90 per cent of the products of petroleum manufactured and sold within the United States are manufactured and sold by companies regarded as established fixtures in the business. These companies expect to continue in the business. They have paid huge sums of money for modern equipment in order to manufacture high-grade products. They have gone to great expense to establish marketing outlets for these products. In many instances, they have developed crude oil production to insure an adequate supply of raw material. A large number have constructed pipe lines to their refineries.

Less than 10 per cent of the gasoline and other products sold in this country are manufactured and distributed by less responsible companies. Many of these concerns operate on the proverbial shoestring. They do not have the equipment nor facilities for manufacturing the grade of products the great majority of automobile owners demand, nor the type of product necessary for the newer makes of automobiles. Cheap crude oil attracts this class of concerns into the oil business.

Tail Has Wagged the Dog

Naturally, there always is a ready market for this less than 10 per cent of the total business, because to this less than 10 per cent of the trade price is of paramount importance and quality of secondary consideration. But to the more than 90 per cent of the trade, quality is of greater importance than price. The companies expecting to remain in the oil business realize this fact and keep their products at a high grade in order to attract the discriminating buyer and to hold him after he once has used their products.

Yet this less than 10 per cent of the business, based on inferior products and inferior service, has established the price structure for the entire industry. The manufacturer of high-grade products who gives every type of service desired by the automobile driver has based his prices on the prices asked by the dealer of inferior products and inferior service. In other words, the tail has been wagging the dog in the petroleum industry.

The result of such a policy is shown in the annual statements of the various oil companies. Regardless of any other explanation offered, low prices for products is the reason for the large losses sustained by the oil companies last year. And these losses will continue just as long as the established oil companies in the business permit fly-by-night price cutters, making an inferior product, to set the price level for the entire industry.

Not Due to Overproduction

Low prices for crude oil last year were not caused by any overproduction. In fact domestic production, plus imports, less the small exports, totaled 48,000,000 bbls. less than requirements and 48,000,000 bbls. of crude oil was withdrawn from storage in the United States last year.

"Potential production" is a myth and a delusion. The old idea that all the crude necessary can be procured from existing fields simply by turning on some valves has been cast into the discard by the engineers, production men and companies who have taken the trouble to make a study of actual conditions in these fields.

It may be lese majesty to say so but, frankly, members of the Railroad Commission of Texas, the Oklahoma Corporation Commission and the Public Service Commission of Kansas seem to have a better grasp of actual conditions in many of the flush fields than do many men who devote all their time to the oil business. These state officials realize the great importance to their states of obtaining a maximum yield of crude oil from the different fields, and they also realize this maximum recovery cannot be obtained by permitting the fields to produce in excess of figures competent engineers have stated is the safety limit if the properties are to be conserved and the oil not trapped by water. Consequently, the oil industry need have no fear such fields will be permitted to produce at an excessive rate for any period of time. Such development would ruin the fields within 60 or 90 days.

Prices of all commodities in the United States must be advanced to a level where the manufacturer can realize a profit on his operations before business conditions in this country regain a sound basis. Any man who thinks he can remain in business while continuing to sell his product below the price of his competitor and at a price which fails to net him a profit, and in many instances represents a loss, is merely paving the way for his own retirement and opening the way for another man, with a different policy, to get a good job.

Time Now for New Policy

This is the first week of spring. Consumption of gasoline can be expected to increase substantially during the balance of this year.

Now is the time for all the executives of the established oil companies to look facts straight in the face, forget the less than 10 per cent of the volume of business, and establish and make effective a policy of refusing to sell their products except at a reasonable profit.

Every refiner knows what it costs him to make gasoline and every other product. That cost should include overhead, depreciation, interest and all other legitimate charges. To that cost should be added a reasonable profit. Then that figure should be the minimum price at which the refiner should sell the product. Any other policy is mighty poor business.

There should be a relationship between crude oil prices and gasoline prices. The sales departments of the different companies should be given consideration when changes are contemplated in the crude price schedules. Crude prices should not be based on gasoline prices which represent a loss to the refiner. Crude prices must be maintained a step ahead of gasoline prices to prevent the "in-and-outer" from opening a tin can refinery and selling an inferior product at cut prices and prices below the actual cost of manufacture of the established company with modern equipment and facilities.

The "Break-Even" Point

In other words, there is a "break-even" point where the man who has no regard for quality of his gasoline, color, octane number or any of the other specifications of good product can make this inferior gasoline and sell it at a profit at a price which would mean a loss to the refiner with modern equipment and whose trade demands a superior product. The crude oil price must be kept above that "break-even" point.

The gasoline and other products sales departments of the oil companies should be notified when any change in the crude oil price schedule is contemplated. This will give the sales manager an opportunity to adjust his prices to conform to the new schedule,

(Continued on Page 20)

New Petroleum Rates Become Effective

Important Changes at Many Points. Advances Emphasize Desirability of Greater Movement by Tank Wagon, Barge and Pipe Line

By C. O. Willson

Traffic and sales departments of petroleum refineries in the United States east of the Rocky Mountain area have been busily engaged over the past week in determining the changes in freight rates on refined and heavy oils which became effective March 15. The new rates which represent the most important general adjustment that has been made in petroleum tariffs in several years are sufficiently important that they will have bearing on both tank car and retail prices at many refining centers and consuming points.

The new tariffs are the results of the Hoch-Smith resolution approved by Congress January 30, 1925, authorizing the Interstate Commerce Commission to make a general investigation of freight rates. The new petroleum rates were published in purported compliance with the commission's decision in Docket 17,000 Part 4 general investigation 171 ICC 286. The Interstate Commerce Commission permitted carriers' tariffs carrying rates on refined petroleum products and heavy oils (fuel oil, gas and crude oil) to become effective March 15 practically without exception. They represent what the carriers and Interstate Commerce Commission believe to be equitable tariffs in the transportation of petroleum products taking into consideration changes which have been made or will be made in other major commodities.

Destination Territory

The destination territory involved comprises the states of Indiana, Michigan, Ohio, New York, Pennsylvania, West Virginia, District of Columbia, Maryland, Delaware, New Jersey, Rhode Island, Connecticut, Massachusetts, Vermont, New Hampshire and Maine, referred to as the East, and all states lying south of the Ohio and east of the Mississippi Rivers referred to as the South.

The maximum reasonable basis prescribed between points within the East on refined products is 32½ per cent of first class. Between points within the South a petroleum scale for refined products was prescribed for general application, with a slightly lower basis applying from the New Orleans district to certain key points.

Refined oil rates were prescribed from the Mid-Continent Field to principal key points in the East and in the South on a somewhat lower basis mile for mile than applies generally within the East or within the South.

The special natural gasoline rates applying from the Mid-Continent Field to certain refining centers in the East and in the South, have been eliminated and instead the regular refined oil rates will apply thereon. The rates on fuel and gas oil are uniformly 80 per cent of the applicable refined oil rates. The new rates are not subject to the 1-cent emergency charge.

STANDARD TO ADVANCE

CHICAGO, Mar. 19. — The Standard Oil Co. (Indiana) is preparing to advance gasoline and kerosene tank wagon and service station prices at many points in its territory as the result of the freight rate increases which became effective March 15 in shipments to consuming points east of the Mississippi River. It is understood that the increases will vary from one-tenth to three-tenths cent per gallon. Some points will not be affected due to the fact that freight rates have not been changed.

The Interstate Commerce Commission in the case of rates within southwestern points (west of the Mississippi River and south of St. Louis and Kansas City) authorized southwestern railroads to delay until July 14 revision on petroleum and petroleum products between southwestern points. The revision was due to be effective April 15. The railroads notified the commission last week that due to the large number of local tariffs necessary clercial work could not be completed. It is expected that the new southwestern rates when published and effective will have important bearing on the tank car movement not only of refined products but also crude oil.

No General Conclusions

As is apparent from a study of the old and new rates in the accompanying table of tariffs between the principal refining centers and representative consuming points it is practically impossible to draw any general conclusion in regard to the new rates. In some cases, the rates are higher, many points are lower and in other cases no changes were made.

Reports from the eastern and middle western areas where there was considerable objection to the higher rates, indicate that the net result of the changes will be an increased movement of refined oils, particularly gasoline by tank wagon and barges. The new rates no doubt will also emphasize the desirability of moving refined products by pipe lines. The same situation applies to some destination points from the Mid-Continent.

As shown in the table, the new rates are higher than the old on both refined oils and heavy oils from Tulsa (Group 3) to Indianapolis, Louisville, Detroit and Memphis. To Columbus, Atlanta, Birmingham and Columbia, S. C., the rates are lower. The same situation applies to shipments from Shreveport (North Louisiana), except that to Detroit the new rates are lower. Group 3 refiners ship relatively little material to southern points.

In the case of Whiting, Ind., which is representative of the Chicago refining areas, rates were unchanged to Indianapolis with increases to Columbus, Louisville and Detroit. In shipments from Toledo which has become one of the largest refining centers in the United States there was a substantial increase in the short haul to Detroit where a large part of the Toledo products are shipped. The Toledo rate to Louisville was also increased but the rates to Indianapolis and Columbus are lower under the new tariffs.

East Texas refiners will benefit under the new rates. The tariffs provide for reductions to Louisville, Atlanta, Birmingham, Columbia, S. C., and Memphis, which are within the consuming territory closest to East Texas refineries for interstate shipments. The new rates for East Texas refiners to middle western points, such as Indianapolis and Detroit, have been increased.

It is interesting to note that in shipments west from Oil City, Pa., which is representative of the western group of inland refineries in Pennsylvania, the new rates will be higher than the old. Increases are effective in shipments from Oil City to Indianapolis, Louisville, Columbus and Detroit.

In shipments inland from Philadelphia rates were increased to Indianapolis and Detroit but were lowered to Louisville and Columbus. The new rates provide for increases in some of the short hauls from eastern refineries.

The refined oil rate from Baltimore to Detroit has been decreased from 2.574 cents per gallon to 2.376 cents per gallon. In recent months a cargo of Rumanian gasoline was unloaded at Baltimore and shipped by tank car to a Detroit jobber. The new rate is approximately the same as that from Tulsa (Group 3) to Chicago. The rate from Baltimore to Indianapolis was also reduced but the refined oil rates to Louisville and Columbus were increased. None of these points is within the area commonly served by refineries and bulk terminals located at Baltimore.

Louisville which is a refining center serving consuming points in the Southeast and Middle West has both advances and decreases under the new tariffs. The new rates are less to Indianapolis and Columbia, S. C., with no change to Columbus, Ohio. Increases were effective to Detroit, Atlanta, Birmingham and Memphis.

Wood River, Ill., which with East St. Louis, constitutes one of the major refining centers of the Middle West has its rates on refined oils decreased to Indianapolis and several intermediate points. Considerable gasoline from Wood River plants is moved into this territory. Rates from Wood River to Louisville, Columbus and Detroit were increased.

The rates on refined oils from Houston which is representative of South Texas were materially decreased in shipments to Columbus, Ohio, Atlanta, Birmingham and Columbia, S. C. Rates were advanced to Indianapolis, Louisville and Detroit.

TABLE SHOWING NEW AND OLD RATES ON CRUDE OIL AND REFINED PRODUCTS TO REPRESENTATIVE CONSUMING POINTS FROM THE LARGER REFINING AREAS

"Ref." refers to rates per gallon on refined oils (gasoline, naphtha and kerosene). "F & G" gives rates per barrel on heavy oils (fuel oil, gas oil and crude oil).

	Indianapolis				Louisville				Columbus				Detroit			
	Old		New		Old		New		Old		New		Old		New	
	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.
Kansas City	.02319	.8702	.02442	.9167	.02409	.9167	.02574	.9635	.03267	1.0324	.03234	1.2121	.03333	1.365	.03498	1.3209
Group 3—Tulsa	.02772	1.0567	.02904	1.0878	.02871	1.1033	.02904	1.1033	.0363	1.4184	.03564	1.3364	.03763	1.4738	.03828	1.4452
West Texas—Amarillo	.02937	1.1189	.03069	1.15	.03036	1.1655	.03069	1.15	.03795	1.4961	.03729	1.3986	.03927	1.5515	.03993	1.5074
North Texas—Fort Worth	.02937	1.1189	.03069	1.15	.03036	1.1655	.03069	1.15	.03795	1.4961	.03729	1.3986	.03927	1.5515	.03993	1.5074
East Texas—Longview	.02937	1.1189	.03069	1.15	.03036	1.1655	.03069	1.15	.03795	1.4961	.03729	1.3986	.03927	1.5515	.03993	1.5074
South Texas—Houston	.0297	1.1189	.03069	1.15	.02937	1.1655	.03069	1.15	.03795	1.4961	.03729	1.3986	.03927	1.5515	.03993	1.5074
Arkansas—El Dorado	.02772	1.0567	.03069	1.15	.02871	1.1033	.02904	1.0878	.0363	1.4184	.03564	1.3364	.03763	1.4738	.03828	1.4452
North Louisiana—Shreveport	.02772	1.0567	.03069	1.15	.02871	1.1033	.02904	1.0878	.0363	1.4184	.03564	1.3364	.03763	1.4738	.03828	1.4452
South Louisiana—New Orleans	.02503	.8455	.02904	1.0878	.0231	.9702	.02904	1.0878	.02904	1.2197	.03564	1.3364	.03069	1.289	.03828	1.4452
Wood River	.01518	.6376	.01452	.6527	.01617	.6791	.01782	.6838	.02013	.8455	.02178	.8081	.02145	.9009	.02310	.8702
Whiting	.01419	.596	.01419	.596	.01716	.7202	.01848	.7148	.01782	.7484	.01848	.6838	.01716	.7207	.01782	.6838
Louisville	.01386	.5821	.01254	.4662	.....	.....	.....	.....	.01782	.7484	.01782	.6527	.0198	.8316	.02046	.7459
Toledo	.0165	.693	.01650	.6216	.01881	.79	.01848	.7148	.01353	.5683	.01320	.4973	.00581	.2728	.0099	.3730
Cleveland	.01716	.7207	.01848	.7148	.0198	.8316	.02046	.7459	.01353	.5683	.01386	.5284	.01485	.6237	.01452	.5694
Oil City	.02046	.8593	.02178	.8081	.02145	.9009	.02376	.9013	.01716	.7207	.01782	.6527	.01716	.7207	.01848	.7148
Pittsburgh	.01881	.79	.02046	.777	.02013	.8453	.02244	.8392	.01617	.6791	.01518	.5905	.01815	.7623	.01848	.7148
Philadelphia	.02838	1.192	.02904	1.0878	.03069	1.2890	.03036	1.1189	.02442	1.0256	.02442	.9324	.02442	1.0256	.0264	.9946
Bayonne	.0297	1.2474	.03036	1.1500	.03201	1.3444	.03168	1.2121	.02574	1.0811	.02640	.9946	.02574	1.0811	.0264	.9946
Baltimore	.02772	1.1642	.02772	1.0256	.03003	1.2613	.02838	1.0567	.02376	.9979	.02244	.8702	.02376	.9979	.02574	.9635
E. Braintree	.0297	1.2474	.03234	1.2121	.03201	1.3444	.03366	1.2743	.02574	1.0811	.02970	1.1189	.02574	1.0811	.02772	1.0567

	Atlanta				Birmingham				Columbia, S. C.				Memphis			
	Old		New		Old		New		Old		New		Old		New	
	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.	Ref.	F.&G.
Kansas City	.04917	1.9749	.03894	1.4608	.04488	1.8224	.03630	1.3675	.05610	2.3058	.04422	1.6628	.02508	1.181	.02178	.8236
Group 3—Tulsa	.04323	1.7094	.03894	1.4608	.03729	1.4918	.03630	1.3675	.05016	1.958	.04422	1.6628	.01947	.8392	.02178	.8236
West Texas—Amarillo	.04785	1.9270	.04059	1.5229	.04191	1.5695	.03795	1.4297	.05544	2.0357	.04887	1.7249	.02211	.8547	.02343	.8858
North Texas—Fort Worth	.03927	1.5540	.03894	1.4608	.03366	1.3364	.03630	1.3675	.04686	1.8026	.04422	1.6628	.02046	.7615	.02244	.8392
East Texas—Longview	.03927	1.5540	.03564	1.3364	.03366	1.2335	.03234	1.2121	.04686	2.0286	.04191	1.5851	.02046	.7615	.02145	.8081
South Texas—Houston	.03729	1.4141	.03762	1.4141	.03234	1.3209	.03366	1.2743	.04620	1.6939	.04356	1.6472	.02046	.8547	.02244	.8392
Arkansas—El Dorado	.03729	1.3831	.03234	1.2121	.03135	1.1655	.02838	1.0723	.04422	1.6317	.03960	1.4918	.01881	.6838	.0198	.7459
North Louisiana—Shreveport	.03729	1.3831	.03234	1.2121	.03135	1.1655	.02838	1.0723	.04422	1.6317	.03960	1.4918	.01881	.6838	.0198	.7459
South Louisiana—New Orleans	.02805	1.1781	.02838	1.0723	.0231	.9702	.02442	.9167	.03564	1.0256	.03564	1.3364	.01881	.7900	.0198	.7459
Wood River	.03795	1.4276	.03366	1.2743	.03036	1.2751	.03036	1.15	.04224	1.7741	.04026	1.5229	.01881	.7900	.0264	.9946
Whiting	.0429	1.8018	.03696	1.3986	.03927	1.6492	.03498	1.3209	.04884	2.0513	.04026	1.5229	.02277	.9563	.03101	1.1655
Louisville	.02805	1.0256	.02904	1.0878	.02442	.9324	.02772	1.0411	.03399	1.2121	.03168	1.1966	.01881	.7900	.02772	1.0411
Savannah	.02376	.8081	.02442	.9167	.02805	.9946	.02838	1.0723	.0198	.6527	.01848	.6993	.....	.....	.03564	1.3364

No Dominant Field in United States

Present Day Big Pools Do Not Influence the Industry as Some Past Fields Have Done. No Overproduction of Oil

By James McIntyre

There is no overproduction of crude oil in the United States. There is no one or several dominant fields, the production of which forms more than a fair percentage of the whole. The 43 largest producing fields in the United States, ranging all the way from 1 year to 56 years old, but the average age of which is 19 years, are producing at this time about the same daily quantity of oil they have produced throughout their average lives. Since the early eighties there have always been big fields—that is, big in a relative sense, and they all have exercised an influence on the price structure, but there have been times when big flush fields influenced the industry far more than do the two or three largest fields of the present. In the fat producing years of the past there was an actual overproduction resulting in large additions to crude oil stocks above ground. In only 3 months out of the 20 months ending with January, 1932, has petroleum supply exceeded demand as represented by stocks. The old, long established policy of adding to stocks in overproduction years to provide for oil in the lean producing years has been discarded temporarily. Most large oil purchasers are unloading their surplus oil as fast as they can and have been doing so for nearly two years.

Value of Stocks Above Ground

One of the leading companies in the industry advanced the idea several years ago that carrying crude oil stocks in large quantity did not pay, and whenever the opportunity offered it has since been reducing its stocks, and following the policy of drilling its underground oil reserves only sufficiently to supply its refinery needs. The idea took hold, and running oil to storage began to be generally deprecated. Time demonstrated that while this policy was good for refiners with large underground crude oil reserves it was not so good for refiners whose crude requirements were filled by purchased oil. With the growing consciousness that present-day big fields are not a menace, and that they are producing about as much oil as good petroleum engineering deems safe, and with little drilling being done to build up additional reserves, many refiners with little or no crude oil stocks are disturbed when they view the future. They are asking themselves where their assured crude oil supply is to come from, with most fields declining; the flush fields rapidly depleting their underground reserve, and little drilling being done.

When we say that no one or several fields dominate the present day crude oil situation we have in mind that there have been times in the history of the industry when a few fields have done so, and at least one time when one field did so.

93 Per Cent from One Field

In the first 21 years of the oil industry during which the development was confined to the State of Pennsylvania only one field was opened that developed into a great major producing area. That was the Bradford Field in McKean County, Pennsylvania, and Cattaraugus County, New York. It was opened in 1875 and reached its peak in 1881, when it was credited with a high of 104,000 bbls. a day. The field was credited with an average production of 70,811 bbls. per day in 1881, and its total production of 25,846,015 bbls. in 1881 represented 93 per cent of the production of the United States in that year, of which 27,376,509 bbls. was produced in Pennsylvania and 295,133 bbls. in Ohio, West Virginia and California. The market price of oil in the year the Bradford Field was at its height ranged from 95 cents per barrel at the opening of the year to a low of 76½ cents in July and a high of $1.14¾ in November, closing the year at 83¾ cents. Nearly one-fourth of the production of the United States that year went to storage.

RECORD OF THE LEADING PRODUCING FIELDS OF THE UNITED STATES
(From their beginning up to December 31, 1931)

Year opened	Field and state—	Total prod. up to Dec. 31, 1931 (bbls.)	Productive acreage	Aver. prod. per acre	Gravity of oil	Daily prod. on Jan. 1, 1932 (bbls.)
1901	Midway-Sunset, California	711,730,460	41,000	17,506	23	49,500
1926	Seminole Field, Oklahoma	461,202,737	24,900	18,522	38	101,000
1921	Long Beach, California	449,944,307	1,650	272,694	27	76,200
1896	Coalinga, California	319,144,271	16,480	19,366	16	7,400
1912	Cushing, Oklahoma	306,040,533	21,850	14,007	37	12,100
1922	Smackover, Arkansas	317,989,918	26,080	12,193	24	26,500
1875	Bradford, Pennsylvania	299,029,343	85,000	3,518	44	30,100
1900	Kern River, California	286,376,594	8,100	35,355	15	9,800
1920	Santa Fe Springs, California	330,087,367	1,650	200,053	30	63,200
1916	Butler County, Kansas	244,338,263	24,900	9,813	34	19,100
1889	Salt Creek, Wyoming	236,325,898	20,480	11,539	36	23,200
1930	East Texas, Texas	107,757,034	90,000	1,197	39	300,000
1928	Oklahoma City, Oklahoma	88,245,795	9,920	8,896	38	150,000
1906	Glenn Pool, Oklahoma	196,680,292	19,050	10,324	32	4,200
1920	Burbank, Oklahoma	179,788,021	21,420	8,394	38	11,700
1920	Huntington Beach, California	181,448,518	2,750	65,981	24	22,500
1913	Healdton, Oklahoma	166,392,975	7,340	22,669	30	11,100
1919	Burkburnett, Texas	138,898,992	18,400	7,549	39	5,100
1897	Fullerton, California	140,858,690	1,750	80,496	22	9,500
1916	Bristow-Slick, Oklahoma	133,834,979	25,175	5,316	35	11,700
1906	Caddo, Louisiana	137,051,563	32,480	4,220	38	7,500
1912	Coyote, California	133,968,622	2,100	63,794	15–30	10,200
1902	Santa Maria, California	127,264,083	8,000	15,908	12–25	2,500
1926	Hendricks, Texas	153,770,544	11,000	13,979	30	32,700
1902	Spindletop, Texas	117,325,449	452	259,569	19	4,750
1919	Elk Hills, California	119,592,489	4,879	24,512	22	12,800
1922	Tonkawa, Oklahoma	109,512,208	3,420	32,021	43	5,300
1905	Humble, Texas	112,904,191	2,350	48,044	19	5,100
1921	Mexia, Texas	103,933,297	3,705	28,052	37	2,800
1923	Powell, Texas	96,564,735	2,612	36,969	37	2,600
1917	Montebello, California	88,955,862	1,105	80,503	22	6,400
1898	McKittrick, California	81,376,085	2,050	39,695	28	1,800
1903	Sour Lake, Texas	75,275,499	7,028	10,711	20	1,600
1925	Church-Fields-McElroy, Tex.	90,250,734	11,840	7,623	31	19,400
1926	Yates, Texas	135,557,615	16,960	7,992	30	56,500
1916	Ventura Avenue, California	117,452,333	1,750	67,115	29	40,000
1919	Hewitt, Oklahoma	72,505,434	2,880	25,175	33	5,800
1927	St. Louis-Pearson, Oklahoma	67,685,343	5,200	13,016	38	20,000
1900	Inglewood, California	79,749,755	900	88,611	20	13,700
1910	Lost Hills-Belridge, California	64,596,425	4,550	14,197	19	9,400
1922	Torrance, California	70,544,469	4,500	15,676	20	6,000
1917	West Columbia, Texas	71,546,217	455	157,244	20	3,700
1920	Goose Creek, Texas	69,856,613	900	77,618	20	3,600
	Total 43 fields	7,593,354,552	599,011	12,676	28.6	1,218,050
	Total all other fields	6,407,251,448	.....	.....	...	981,950
	Total United States	14,000,606,000				2,200,000

The 43 largest fields in the nation's history, which have produced 54.2 per cent of all the oil produced in the United States, were on the first of this year producing about 55 per cent of the total production as of January 1, and the three largest at this time—East Texas, Oklahoma City and the Seminole Field—were producing only 26 per cent of the total.

The production of the 43 fields in its relation to the whole production is not much more than half the production of the Bradford Field in its relation to the whole production of 1881.

The particular bugaboo at this time, the East Texas Field, on January 1 represented less than 14 per cent of the country's daily production.

We will digress at this point to show the order in which the big fields of the country following Bradford have come in, dividing them into decades as a convenient grouping.

In the decade 1881-90 one big pool was opened, Salt Creek, Wyoming, which was developed slowly and which was not permitted to reach its peak until 1923. It has produced 236,325,898 bbls., and on January 1 was producing 23,200 bbls. a day.

In the 10 years between 1891 and 1900, both inclusive, Coalinga, Fullerton, McKittrick, Kern River and Inglewood, all in California, were opened. These five fields have produced 907,505,395 bbls. up to January 1 of this year and on that date were producing 42,200 bbls.

Eight fields that developed into great major producers were opened in the decade of 1901-10, including Midway-Sunset, California; Spindletop, Texas; Santa Maria, California; Sour Lake, Texas; Glenn Pool, Oklahoma; Humble, Texas; Caddo, Louisiana, and Lost Hills-Belridge, California. These pools have produced 1,542,827,962 bbls., but were down to 84,550 bbls. on the first of the year.

Decade of Many Big Fields

Between 1911 and 1920, both inclusive, 15 great fields were opened. First came Cushing, Oklahoma; then followed Coyote, California; Healdton, Oklahoma; Augusta-Eldorado, Kansas; Bristow-Slick, Oklahoma; Ventura Avenue, California; Montebello, California; West Columbia, Texas; Burbank, Oklahoma; Elk Hills, California; Hewitt, Oklahoma; Santa Fe Springs, California; Burbank, Oklahoma; Goose Creek, Texas, and Huntington Beach, California. These 15 fields have produced 2,354,707,218 bbls. and on January 1 were producing 239,000 bbls. a day.

The latest parade of big fields, those between 1921 and 1930, both inclusive, was led by Long Beach, California, followed by Mexia, Texas; Smackover, Arkansas; Tonkawa, Oklahoma; Torrance, California; Powell, Texas; Seminole, Oklahoma; Church-Fields-McElroy, Texas; Yates, Texas; Hendricks, Texas; St. Louis, Oklahoma; Oklahoma City, Oklahoma, and lastly, East Texas. The 13 fields listed have produced 2,252,958,736 bbls.

The latest batch of pools have thus far shown a greater productiveness than the 15 preceding ones, which, while they are on an average seven years older, have produced less oil per pool than the 13 pools last listed above.

The big pools of the last decade have produced 2,252,958,736 bbls. in an average of six years, and on January 1 were producing 799,000 bbls. per day, indicating their healthy condition at this time as compared to the older fields, all of which have seen their best days, unless some of them develop hidden treasure by deeper drilling.

No Overwhelming Pools

An analysis of the big fields of the present fails to develop an overwhelming one. There are pools among them which, if permitted to flow wide open, could wastefully produce by bringing to the surface too much production for the industry to immediately absorb, but a still more serious form of waste would thus be committed by letting in the flood of salt or sulphur water which underlies them, and which is ready to move forward disastrously if any prolonged program of overproduction is carried on. For physical reasons the few great fields we have must be held down and made to produce with the end in view of getting the most oil out of the reservoir. The development of Glenn, Cushing, Augusta-Eldorado, Mexia, Powell, Burkburnett and other pools that were rapidly drilled and produced to the limit of pipe line facilities will never be repeated in this country as long as such development is wasteful, both in oil and in money.

Lessons From the Past

The result of the old policy of opening wells to the limit of pipe line facilities can be seen by going over the records of big fields in past years. In the American Petroleum Institute's "Petroleum Facts and Figures," Volume 1, is a table showing peak production and decline during the three years following the peak of a large number of once prominent fields and pools.

The Spindletop Pool in Texas declined 92 per cent in two years, or from a peak of 63,548 bbls. in 1902 to 4,914 bbls. in 1904. Humble declined 92 per cent, or from 93,272 bbls. to 7,686 bbls.; Ranger, Texas, 77 per cent or from 73,250 bbls. to 17,200 bbls. The decline in two years after the peak in other fields is shown to have been 69 per cent in the Glenn Pool; 74 per cent in Cushing, 32 per cent in Healdton, all in Oklahoma. Homer, Louisiana, declined from 67,484 bbls., a peak, to 15,369 bbls., or 77 per cent, in two years. El Dorado, Arkansas, declined 68 per cent; Mexia, Texas, 74 per cent; Haynesville, Louisiana, 78 per cent; Powell, Texas, fell off 88 per cent. The slowly and carefully developed Burbank Field in Oklahoma, pointed to as a model field, declined from a peak of 121,700 bbls. to 56,300 bbls., or 54 per cent, in two years and fell off 64 per cent in three years. Fifteen pools, including Spindletop, Humble, Ranger, Glenn, Cushing, Healdton, Augusta, Eldorado (Kansas), Burkburnett, Desdemona, Homer, El Dorado, Arkansas, Breckenridge and Haynesville averaged a decline of 58 per cent in one year after their respective peaks, 71 per cent in two years and 78 per cent in three years. Huntington Beach, Califor-

(Continued on Page 87)

Dangerous Gases in the Oil Industry

Explosive Properties and Nature of Possible Harmful Influence on the Human System Are Described

By C. K. Francis, Ph.D.
Technical Editor

The several gases met in the petroleum industry may, under favorable conditions, be harmful to life and cause damage to property. All of them are dangerous to the human system, some acting as asphyxiants, others are violent irritants even in small quantities, and several are recognized as powerful poisons. Numerous fires and explosions have been traced to the careless handling of the hydrocarbon gases; also, several of the other gases incident to production and the purification of refinery products have been known to be the cause of many fires and explosions. The gases most frequently met in the petroleum industry will be considered here with particular reference to their explosive properties and the nature of their possible harmful influence on the human system.

The larger part of the petroleum gases are not chemically active and, consequently, cannot be considered poisonous. When breathed in large quantities, or over an extended period, they usually have a tendency to cause unconsciousness because of their anesthetic properties or to act as simple asphyxiants due to shutting off the oxygen supply.

Hydrocarbons

The first four members of the paraffin series of hydrocarbons may be found in natural gas and refinery gas. These are methane, ethane, propane and butane; occasionally traces of the higher hydrocarbons will be found in both gases. The composition of this gas is related to the temperature at normal pressure; consequently, appreciable quantities of the hydrocarbons heavier than butane cannot exist in the gaseous form unless the temperature is high. The boiling point of butane is 30.9° F., and the next higher member, pentane, boils at 97° F. Usually any sample of natural gas, or refinery gas, will be a mixture of the several gases but occasionally natural gas will be found composed almost entirely of methane. The principal constitutents of the normal natural gas are methane and ethane, and the hydrocarbons heavier than butane are found, in small quantities, in refinery gas.

No extensive commercial use is made of either methane or ethane, except for fuel, but propane and butane are extracted under pressure and low temperatures to produce a liquid. This liquefied gas is stored in special vessels and maintained under pressure until released as desired. This form of the gas, which may be practically pure propane or butane, or mixture of the two, is conveniently distributed in special tank cars and cylinders for use in domestic fuel systems, as a source of heat in certain industrial appliances, and for enriching manufactured gas. Natural gas and refinery gas, to some extent, is extensively used as an industrial and domestic fuel.

Explosive Range

The kind of hydrocarbons which may be present in a gas has a direct bearing on the explosive range of the gas. Some natural gas contains large quantities of nitrogen and carbon dioxide, neither of which burns and does not support combustion, so when appreciable quantities of these are present they serve to decrease the combustion rate and also change the volume required for mixing with air to produce an explosive mixture.

The volume of hydrocarbon gas required for an explosive mixture with air decreases as the molecular weight becomes larger and as the specific gravity of the gas increases. This does not mean that the heavier hydrocarbons are more liable to produce an explosion than the simpler ones. The temperature of vaporization also increases with molecular weight; therefore, the higher hydrocarbons cannot be present in any mixture which exists as a gas at normal temperatures. They are present in the hot gases of the stills, towers and cracking stills, and when air is introduced into such gases dangerous explosive mixtures are formed.

The explosive limits, based on the percentage present in an air mixture, of the lighter hydrocarbons, together with specific gravities and molecular weights, are shown in the table.

EXPLOSIVE LIMITS OF HYDROCARBONS

Hydrocarbon—	Specific gravity	Molecular weight	Explosive limits per cent
Methane	.554	16.03	5.6/14.5
Ethane	1.049	30.05	3.0/15.0
Propane	1.562	44.06	2.1/3.5
Butane	2.046	58.08	1.6/3.0
Pentane	2.490	72.09	1.3/2.5

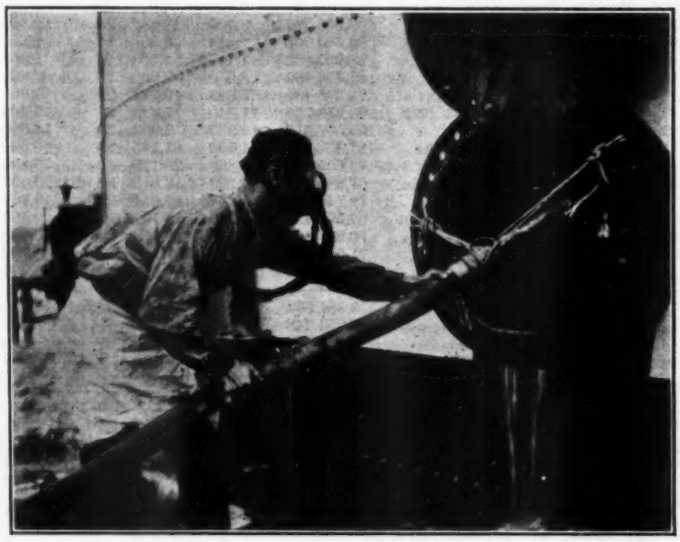
It is important to remember, when handling natural gas, the gas from stills or the lighter gasolines, the very small quanties of these hydrocarbons required to make an explosive mixture with air. So long as gasoline remains a liquid it is not explosive, but when it is changed to vapor or gas it becomes an explosive, the explosive range varying between 1.4 to 6.4 per cent of the total volume of an air mixture. One gallon of gasoline when completely converted into gas will form a volume of approximately 35 cubic feet, or enough to render an air mixture of 2,100 to 2,500 cubic feet highly explosive.

Flame Necessary

It is necessary that a flame of some kind be introduced into an air-gas mixture before an explosion will take place. Probably the most frequent cause is a mere spark which may be produced in several ways. A spark may result from the discharge of static electricity which has accumulated on the surface of a tank, tower, still or any place where gas may have collected. Numerous tanks are set off by lightning and it is well recognized in the industry that a large tank with but a small quantity of oil in it is much more hazardous than one filled with liquid to its capacity. Exposed electric wiring, switches, lamp sockets, unprotected lamp bulbs, rubber in many forms, and sparks produced by mechanical means, such as dropping of a hatch cover and striking of the iron with a hammer or any iron or steel tool, are some of the sources of explosions. Additional sources include the torches used when cutting and welding, hot rivets and sand blasting. Probably many fires and explosions have had their origin in pyrophoric deposits[1] which tend to collect on the surface of iron and steel as the result of the corrosive action of hydrogen sulphide. More will be said about these deposits in the discussion of hydrogen sulphide.

Two of the most disastrous explosions in the industry resulted from the gas escaping from cars loaded with natural gasoline. These were at Ardmore, Okla., September 27, 1915, in which 47 persons were killed and 524 injured; and at Memphis, Tenn., January 24, 1921, where 13 were killed and 18 injured. There was extensive property damage in both cases.

The increase in specified gravity of the hydrocarbons as they approach the liquid members of the series is indicated in the table. The petroleum vapors may be 3.5 times heavier than air and will remain in a tank or tank car for a long time even when hatches and covers are removed. These vapors may be removed by circulating air or steam, the use of steam being the common method. If the gasoline vapors exceed 6.4 per cent in an air mixture they will burn if enough oxygen, 12 per cent or more, is present to sustain combustion. Very small quantities, something of the order of 0.2 per cent, are sufficient to asphyxiate a person.



Washing down a tank before removing plates.

Inspecting Tanks

There are several methods used for testing a tank atmosphere to determine the conditions as to possible explosive mixtures. The simplest of these is to withdraw samples from several different places in the tank and make explosion tests with small portions of each sample. This test is made by collecting, by water displacement, the gas from the sample in a test tube and while continuing to hold the tube mouth down hold a lighted match to the opening. The gas in the tube will ignite if hydrocarbon vapors are in excess, there will be a slight explosive pop if there is a dangerous mixture, or there will be no flame action if the tank contains a safe atmosphere.

Portable vapor indicators are available for inspecting possible explosive air-gas mixtures. Hooker, Fene and Currie, of the U. S. Bureau of Mines, have described one of these. This is of the indicating type, consisting of a portable Wheatstone bridge, one arm of which includes a heated platinum filament. The bridge, with its meter adjusted to zero in air, becomes unbalanced when in a combustible gas due to the burning of the gas on the surface of the heated filament. This causes an increase in the temperature and resistance of the filament proportional to the percentage of the gas present. As calibrated, the percentage of methane in air is shown direct on the meter scale.

When time will permit, and the apparatus is available, analyses of the atmosphere in question should be made to confirm any results found by means of special apparatus. It is advisable to observe this precaution when negative results are obtained.

Lanterns built on the principle of the Davy safety lamp have been used for detecting the presence of dangerous mixtures of hydrocarbon gases, or vapors, and air. A flame is burned in these lamps inside a chimney of wire gauze. When a burning safety lamp is placed in an atmosphere composed of combustible gases and air the flame will become larger and continue to grow in size with increase in the quantity of dangerous gas. The flame does not extend beyond the screen because its temperature is lowered beyond the kindling point of the gas by conduction through the metal in the gauze. This form of lantern has been improved to include means for measuring the height of the flame and thus enable one to make an estimate of the quantity of explosive gas present.

The use of safety lamps for detecting explosive mixtures of hydrocarbon gases has been investigated by Wilson and Wilkin. They found that a special form of lamp, the Koehler safety lamp, larger and better constructed than the Davy lamp, with a mechanical lighter and a glass shield for the flame, gave a steady flame height and very sensitive to the presence of gas. This lamp has an aluminum frame and the flame is enclosed in glass surrounded with double truncated concentric gauzes. The fuel used by these authors was 65° A.P.I. gravity gasoline. The flame is ignited by means of the internal mechanical lighter. There is a graduated scale on each side of the glass chimney for showing the height of the flame. Starting with a flame height between 20 and 25 m.m. was found to be the most sensitive to increasing gas. The lamp is lighted outside the tank 5 minutes before taking it into the tank to insure a constant size and adjusted to between 20 and 25 m.m. in height and the exact height noted. A charcoal filled gas mask should be worn by the person entering the tank and likely places tested as explained under the Davy safety lamp. A definite rise of 2.5 m.m. or more in the height of the flame indicates a dangerous condition and when this is found the tank should be further steamed and then again inspected.

Physiological Action

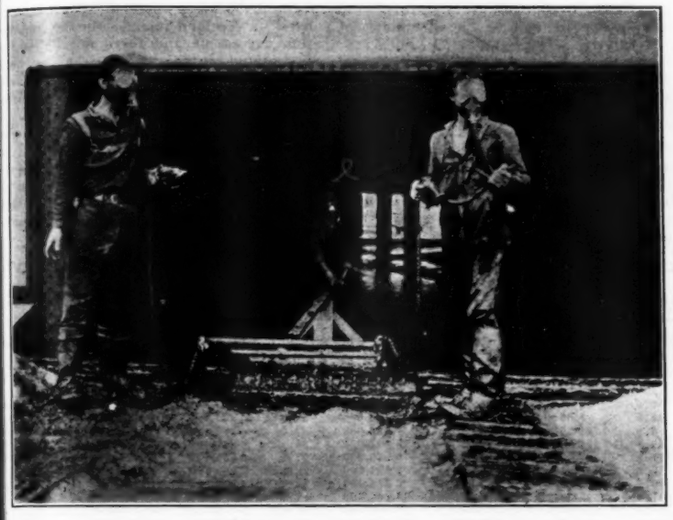
The lower hydrocarbons, such as are found in natural gas and in the gas from

[1] Acknowledgment is made to E. N. Blakeslee, safety engineer, Department of Accident Prevention, American Petroleum Institute, Dallas, Tex., for the illustrations used in this article.

petroleum and gasoline, act as simple asphyxiants when breathed for a sufficient length of time. They act by simply shutting off the supply of air through which the oxygen required for the normal body functions is obtained. These hydrocarbons are without direct action on the body tissues or the delicate structures of the lungs. They are anesthetic gases which leave no serious after effects. Even when breathed in considerable quantities, day after day the lower hydrocarbons produce no evidence of anything suggesting chronic poisoning. The reason for this is that these gases are chemically inert and lacking in tendency to promote organic decomposition.

Treatment of Asphyxia

Henderson and Haggard, in Noxious Gases, recommend treatment for simple asphyxia as follows: "The first step in the treatment of asphyxia is to remove the man immediately to fresh air but not



Extra sheet off tank for ventilation.

cold air. He is laid on his stomach, with his face turned to one side, and, if breathing, is given an inhalation of oxygen containing 5 per cent of carbon dioxide. If he is not breathing manual artificial respiration, Schaefer method, is started at once, and the inhalation of oxygen plus carbon dioxide is administered meanwhile. The inhalation of oxygen and carbon dioxide is continued for 15 to 30 minutes after spontaneous respiration commences. The after treatment consists of general measures designed to prevent the development of pneumonia. Drugs have little value in the treatment of asphyxia.

"The points to be clearly understood in connection with the treatment of asphyxia are that the essential condition consists, not in cessation of breathing, for respiration continues almost to death; but in the interruption of the supply of oxygen to the tissues of the body, and especially to the brain. In this respect asphyxia by gases contrasts with drowning and electric shock. In both of those conditions spontaneous respiration is stopped, and artificial respiration is the supremely important measure of assistance. Inhalation of oxygen and carbon dioxide is then merely a useful accessory. After a prolonged severe asphyxia, on the contrary, the victim, unless irretrievable, is generally breathing spontaneously, although poorly. The administration of oxygen alone is not very effective, for the reason that it is not inhaled in sufficient volume. The carbon dioxide mixed with the oxygen acts, however, as a powerful respiratory and cardiac stimulant. It both replaces the carbon dioxide that the body has lost and by the increase of respiration induces a deep and full inhalation of the oxygen with which the carbon dioxide is mixed."

An atmosphere containing more than 0.2 per cent of hydrocarbon gas or vapor cannot be breathed by the average individual for any considerable time without danger of asphyxiation.

Hydrogen Sulphide

Small quantities of hydrogen sulphide, H_2S, are found both in the gas and oil of many fields, but it is fortunate that excessive quantities in either natural gas or petroleum are to be found in comparatively few districts. In most instances this gas is present in natural gas and oil in proportions of under 1 per cent, however, quantities of over 15 per cent have been found in some gas. Refinery gases have a similar hydrogen sulphide content.

The normal condition of hydrogen sulphide is gaseous and being somewhat heavier than air, specific gravity 1.1906, it has a tendency to collect and form pockets in low places where there is little or no circulation. It is soluble in cold water to the extent of approximately four volumes of gas to one of water. The water solution reacts acid and possesses the usual properties of acids. It is inflammable, burning with a blue flame. The most prominent property of the gas is its very objectionable characteristic bad odor.

When hydrogen sulphide burns in air sulphur dioxide and water are the products. Two volumes of hydrogen sulphide and three volumes of oxygen produce two volumes of sulphur dioxide and two volumes of water. When these conditions exist and an electric spark is introduced, a violent explosion results, according to the equation:

$$2\,H_2S + 3\,O_2 = 2\,SO_2 + 2\,H_2O.$$

If there is not enough air to complete this reaction there will be a deposit of sulphur formed, as explained by

$$2\,H_2S + O_2 = 2\,H_2O + 2\,S.$$

This reaction explains the yellow deposits of sulphur so frequently found in gas lines, tanks, and the vapor systems of refineries where high sulphur oils are processed.

Pyrophoric Deposits

When appreciable quantities of hydrogen sulphide are present in a gas or evolved from an oil and these come in contact with iron there is a tendency to cause the formation of iron sulphide. Freshly formed iron sulphide oxidizes readily and the oxidation proceeds with such rapidity that the reaction is accompanied by a sudden rise in temperature. The development of heat is often so great that the mass is heated to the glow point and in the presence of inflammable liquids or vapors may cause explosion or fire depending on the volume of air present. Such deposits are often formed in the upper parts of agitators, tanks, towers, and condensing systems out of contact with the air, but when opened explosions and fires frequently follow the admission of air. Deposits of this kind are liable to form during dry cold weather.

It is a good plan to thoroughly steam a tower or tank which has been used in high sulphur service, before permitting any air to enter. Metallic packings are not to be recommended for use in towers because of the danger of the formation of pyrophoric deposits.

Hydrogen sulphide is known to be a very dangerous poison and may prove fatal if the air breathed contains more than a trace. Irritation and inflammation of the eyes, throat and lungs have resulted from breathing as little as 0.005 per cent, while a concentration of 0.06 per cent is considered high and dangerous.

Hydrogen sulphide poisoning appears to take place in two stages; these have been defined as acute and subacute. The subacute cases result from brief exposure and where the concentration is not high. The acute condition results in asphyxiation when the person has been exposed for some time, usually to a high concentration of the gas, and collapse may take place without warning.

When the quantity of hydrogen sulphide is low, 0.005 to 0.02 per cent by volume, and the exposure is brief, a smarting of the eyes, headache and nausea may occur; longer exposure usually causes irritation of the eyes and nose, throat and lungs, which often incapacitates the victim and may result in illness and even death. Exposures to high concentration, above 0.05 per cent, asphyxiation almost invariably results, followed by death. The bad odor of this gas is distinctive and men should not work without protection when the odor is strong; however, odor alone is not reliable because a person accustomed to working in the presence of hydrogen sulphide soon loses the sense of smell so increases in the concentration may pass unnoticed. Most of the fatal cases have resulted from continued breathing of the air which was contaminated with the hydrogen sulphide, as when working in a tank or in a condenser box and away from a strong current of pure air. Exposure for five minutes may prove fatal.

A very striking property of this kind of poisoning is the rapidity with which the virulent condition advances from irritation through depression and stupor into unconsciousness. This fact suggests that treatment of a person showing signs of hydrogen sulphide poisoning should be prompt as a few minutes' delay may prove fatal. Fresh air is necessary and artificial respiration should be given while waiting for the arrival of a physician.

When hydrogen sulphide is taken into the body it combines with the sodium in the cells to form sodium sulphide. Irritation follows because of the abstraction of the alkali and by the sodium sulphide which is caustic to the flesh. Part of the sodium sulphide is absorbed through the membranes of the respiratory system and enters the blood stream. It is there decomposed with the liberation of hydrogen sulphide. If hydrogen sulphide is passed through blood a dark green pigment is deposited, probably a compound formed by the union of sodium sulphide and the iron of the blood.

The treatment of acute hydrogen sulphide poisoning is the same as for asphyxia as outlined under hydrocarbons.

Carbon Dioxide

Carbon dioxide, CO_2, a simple asphyxiant, one and a half times heavier than air, specific gravity 1.53, nonexplosive and normally inactive. It is the chief product of complete combustion and is ordinarily present to the extent of 11 to 14 per cent in flue gas and the waste gas from furnaces. The largest quantities met with in the industry are found in natural gas, some gas wells producing a gas that is practically pure carbon dioxide. Dangerous accumulations may be found in flues, tunnels, wells and favorably located tanks. Any likely place should be inspected before permitting workmen to enter. The simplest method for detecting dangerous concentrations of carbon dioxide is to test a sample of the atmosphere, contained in a wide-mouth bottle or jar, with a lighted candle or match; if the flame is extinguished a dangerous percentage of carbon dioxide is present.

Since this gas will not burn, nor support combustion, it is of value as a fire extinguisher, and for this purpose the liquefied gas may be stored in cylinders or produced as wanted by chemical action.

A person overcome in an atmosphere of carbon dioxide, if rescued in time, should be treated as for asphyxia.

Carbon Monoxide

Carbon monoxide, CO, is one of the most insidious of the poisonous gases. It is colorless, tasteless, without odor, and acts to render unconscious, without warning, a person exposed to remarkably small concentrations. The specific gravity of the gas is 0.9670, nearly the same density as air. Carbon monoxide will form an explosive mixture with air when present to the extent of 12.5 per cent and may explode up to 75 per cent.

Iron sulphide deposits, if permitted to dry, will ignite hydrocarbon vapors.

Carbon monoxide is produced in the buring of carbon containing materials, such as natural gas, coal, coke, wood, gasoline, explosives, etc., whenever the supply of air or oxygen is not sufficient for complete combustion. It is a major constituent of water gas, producer gas, blast-furnace gas, and coal gas. Automobile exhaust gas contains 3 to 12 per cent of carbon monoxide, and it is a constituent of the spent gas from gas engines.

Coal gas is more easily ignited, and tends to form explosive mixtures more easily than natural gas because of its high hydrogen and carbon monoxide content, both of which have a much broader range of possible explosive mixtures when

(Continued on Page 86)

Unit Operation Succeeds in California

Experience of Operators in Kettleman Hills Field Indicates That Many Advantages Have Accrued Under the Plan

By L. G. E. Bignell
Petroleum Engineering Editor

Since its discovery by the completion of Milham's No. 1 Elliott well in 1928, the Kettleman Hills Field of California has been of great interest to oil men in all parts of this country, and upon learning that R. C. Patterson, supervisor of oil and gas operations in the Pacific Coast division of the U. S. Geological Survey, Taft, Calif., would be passing through Tulsa on his return trip from Washington, D. C., the executive committee of the Mid-Continent section of the American Institute of Mechanical Engineers and the Tulsa Geological Society invited him to address a joint meeting of those societies on March 21 in Tulsa.

In accepting this invitation Mr. Patterson came in an unofficial capacity, but because of his intimate knowledge of conditions in that field his talk proved of much interest and the facts he stated indicate that with co-operation on the part of lease and royalty owners it is possible to operate even large fields in a profitable manner for all concerned.

Soon after the discovery well, which was drilled on government land, was completed the Department of the Interior decided that it would be desirable to suspend competitive development and postpone production as much as possible if waste of oil and gas from its holdings in this structure was to be accomplished.

In July, 1929, a curtailment agreement was made effective for a two-year period between the operators of the Kettleman Hills Field and the Department of the Interior.

This agreement stipulated in part that the parties interested in the Kettleman Hills Field "... undertake by the appointment of a representative committee or by other means to consider a plan of unit development or other co-operative method of developing this great structure."

Following this mutual agreement upon the fundamental principles of unit operation the Kettleman Hills North Dome Association was incorporated in December, 1930, as a nonprofit, co-operative corporation in accordance with the corporation laws of the State of California. This co-operation is for the life of the field.

The agreement was approved in January, 1931, by the California state oil and gas supervisor and by the Secretary of the Interior. On February 10, 1931, officers and 11 directors were elected and the association became active with its work carried on under a general manager.

Acreage Supervision

The association assumed control of 10,800 acres of proven and semiproven land and operates it as a single unit. Operations under the unit plan started April 1, 1931. This area is defined upon the map as Kettleman Hills by the "blue line" and it has been divided into 3,380 acres known as Class "A" leases, 6,260 acres of Class "B" leases and 1,160 acres of fee land.

The Class "A" leases are based upon a royalty payment of 5 per cent while the Class "B" leases cover acreage upon which there is a sliding scale royalty, varying from 12½ to 33⅓ per cent, according to the amount of oil produced. The greater the amount of oil produced the smaller the royalty percentage.

Within the area marked by the "blue line" the Standard Oil Co. of California owns 9,460 acres operated upon the same basis as the land included in the association agreement and there are 940 acres of fee land on the structure that has been developed and produced by individual companies without regard to the association's operating conditions.

There is a total of about 21,200 acres of land upon the North Dome that is included within the "blue line," but provision has been made in the agreement whereby additional land may be added inside of the "blue line" if oil is proven

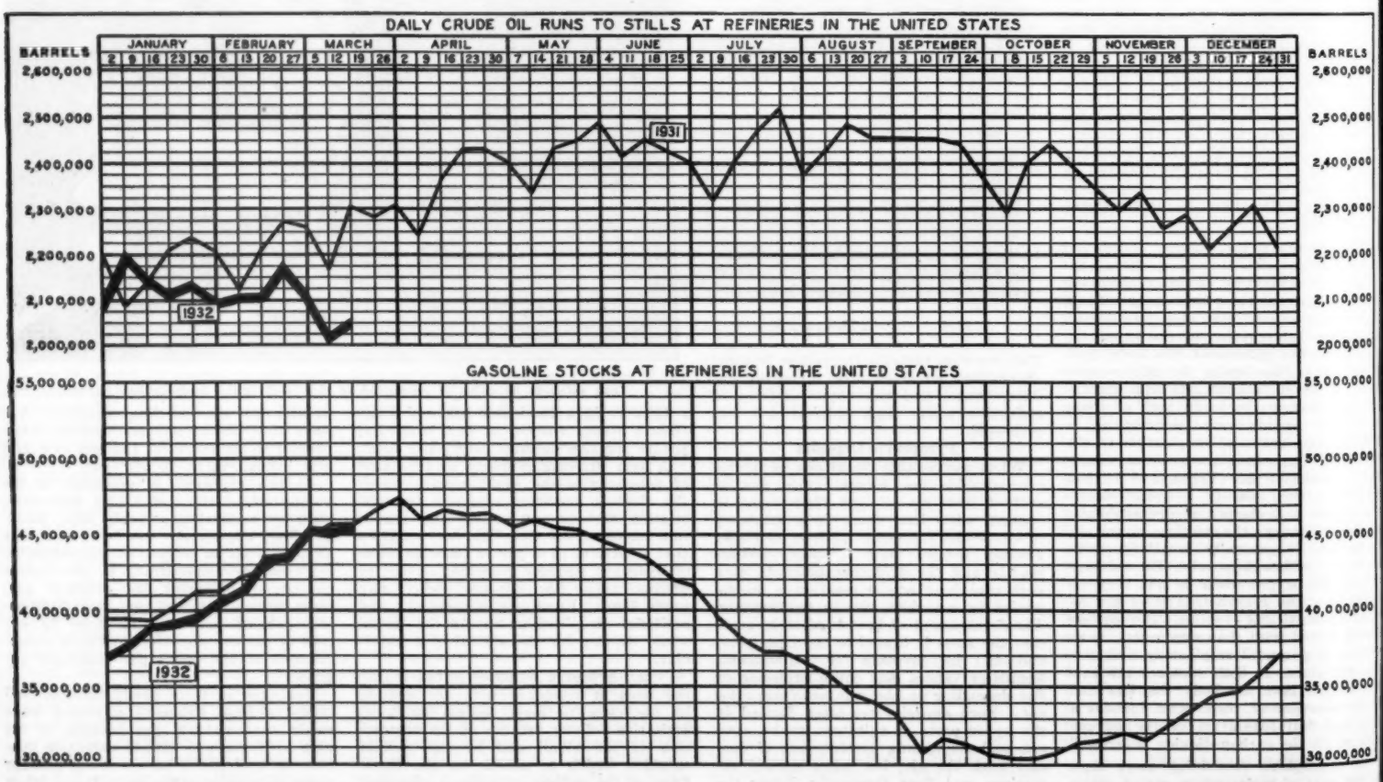
(Continued on Page 88)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending March 19:

	Week ending March 19				Week ending March 12				Week ending March 14, 1931			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	423,300	6,833,000	5,944,000	100.0	425,100	6,708,000	6,293,000	100.0	497,600	8,399,000	7,390,000
Appalachian	91.8	91,500	1,865,000	1,148,000	91.8	89,900	1,810,000	1,149,000	93.8	81,700	1,590,000	1,102,000
Indiana, Illinois, Kentucky	98.9	252,000	6,080,000	4,103,000	98.9	269,600	5,887,000	4,224,000	97.5	287,400	5,421,000	3,039,000
Oklahoma, Kansas, Missouri	89.6	230,300	3,885,000	2,986,000	89.6	217,300	3,774,000	3,091,000	89.4	245,400	3,346,000	2,734,000
Texas	91.3	444,700	9,187,000	9,420,000	91.3	473,700	8,913,000	9,569,000	91.9	555,700	7,535,000	7,986,000
Louisiana and Arkansas	98.9	150,300	1,798,000	4,036,000	98.9	143,700	1,688,000	3,931,000	98.2	140,700	2,029,000	2,319,000
Rocky Mountain	89.4	32,600	1,986,000	657,000	89.4	30,700	1,965,000	671,000	93.1	43,900	1,860,000	852,000
California	97.1	460,300	14,794,000	95,826,000	97.1	413,700	14,916,000	96,045,000	98.8	459,000	15,641,000	100,942,000
Total United States	95.2	2,085,000	46,428,000	124,120,000	95.2	2,063,700	45,661,000	125,023,000	95.7	2,314,400	45,821,000	127,358,000
Texas Gulf Coast	99.8	355,600	7,469,000	6,754,000	99.8	280,500	7,134,000	6,849,000	100.0	426,400	6,292,000	5,748,000
Louisiana Gulf Coast	100.0	105,300	1,660,000	3,370,000	100.0	95,700	1,551,000	3,302,000	100.0	93,600	1,820,000	1,286,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) gas and fuel oil stocks.



All data based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above table.

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RUNNING WILD

The staggering losses being reported by oil companies should set the industry to thinking.

In other businesses management has the excuse of greatly lessened demand as part of the general depression but there has been no such shrinkage in the consumption of gasoline, the domestic demand being actually over two per cent larger than the previous year.

Since there has been no slump in volume of gasoline sales as there has been in other businesses what answer is there to the riddle of these enormous losses?

Only one answer is possible—that prices have been too low to bring a profit.

Worse than that, prices have been so low as to involve oil companies in millions of dollars in losses.

Twenty millions here, twelve millions there, ten millions somewhere else and so on along the line, while stockholders wonder how so much business could be done and yet show disastrous returns.

Surely they are justified in concluding that there must be something basically and radically wrong in the operation of companies that make such amazing reports.

There certainly is.

The primary purpose of business is profit. If there is no profit in a business it cannot continue. If, without any appreciable decline in volume of trade, its losses increase several millions, the cause of the leak must be found and ended.

There can be no question as to the cause in the oil business—flat failure to get a living price for its products, crude and refined.

The industry has been running on a distress basis—so much crude and so much gasoline to be got rid of, instead of so much to be sold at a profit.

No wonder losses reach into the tens and scores of millions.

Any analysis of the industry will show it was inevitable—matters being as they are.

Take refining, for example. The companies that make and distribute a quality gasoline with a quality service have a break-even point, the netback to the refinery, which is necessarily higher than the concerns which make an inferior product with inferior service.

Distress or low priced crude helps the maker of the inferior product to break even at a lower figure which the manufacturer of quality products cannot reach without loss.

With crude at a price which represents its proper proportion in the cost of gasoline the break-even point would be the difference between cost and loss for the manufacturer of the quality product.

The initial blunder leading to these losses of millions of dollars has been failure to recognize the relationship between the cost of crude and the price obtained for gasoline.

The price of a product should be based on the cost of production in a well operated plant, not on the cost of an inferior product.

A well operated plant will have a proper relationship between the cost of its raw material and the price of its finished product. It cannot compete successfully with an inferior plant and maintain its quality product. When it attempts to do so losses are inevitable.

That is the position in which the oil business finds itself today. It will have to be abandoned.

Companies which have modernized their plants and manufacturing processes and perfected distributing systems on national or sectional scales, assuring their customers of a superior product and superior service cannot expect to operate at prices offered by concerns that have none of these characteristics in product or service.

Increased knowledge of physical properties and chemical constituents in determining the relation of antiknock fuels has called for new equipment to produce the quality gasoline which has been established as necessary to operate the new cars now being put on the market.

How absurd it is, then, to enter into a price competition based on cheapness alone? How ridiculous to throw away all that has been expended in producing a superior product by allowing the inferior article to set the market?

Unless something is done about it we are headed for disaster. Those millions in losses are a warning that must be heeded.

This great industry has been running wild—struggling to get rid of its products instead of trying to make a profit.

Almost any little tin can plant could stampede the market. A price cut anywhere could send the whole structure toppling like a house of cards. And this big industry allowed this five or ten per cent fringe to fix its prices and determine whether it should report profit or losses at the year's end.

How long are the 90 or more per cent of the industry who want to stay in business going to let their business be run by any Tom, Dick or Harry who can butt into it?

Or, the question may rather be, very soon, how long will the stockholders of the industry put up with the sort of management which with approximately the same demand shows up with millions in losses instead of a reasonable return on the investment?

As has been said before in these columns, there is nothing but losses and failure in this craze for cheapness. It is keeping the country and the industry in the hole. The first sign of returning sanity will be the courage to raise prices to a living level where business can be conducted at a profit, men can be put to work and buying power can be re-established.

For the oil industry, the first step should be to put crude on a basis that will bear a true relationship to profitable production of gasoline, of fuel oil and other products.

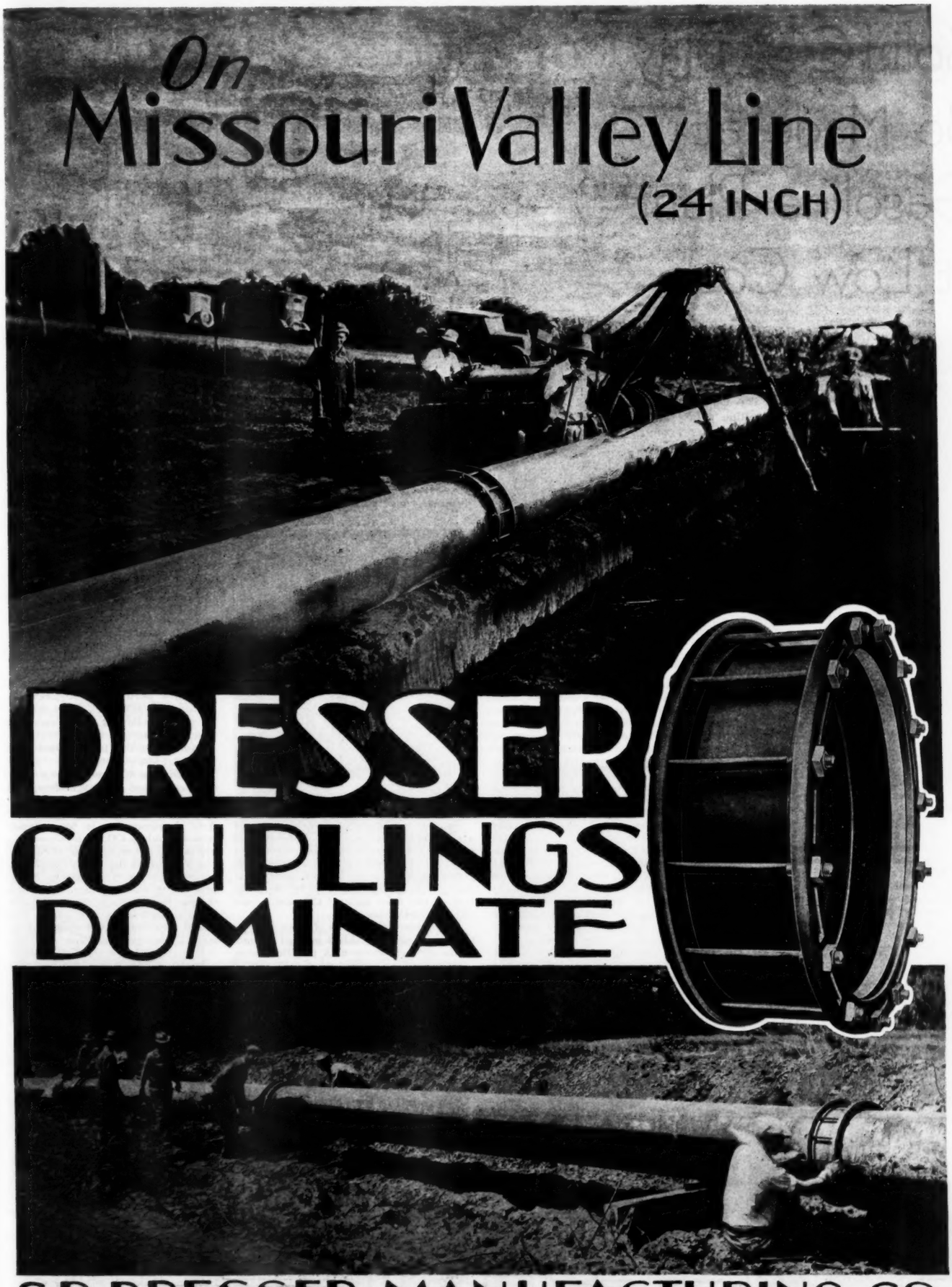
Strengthen the price of crude to where it cannot be used to beat down the gasoline market below profits.

Get rid of the notion that volume of business means anything unless it means profit. Those millions in losses without a noticeable decline in consumption are a sufficient answer to that theory.

If the industry is to continue to function, if existing managements expect to remain on the job, operations henceforth will have to be conducted on a cost and profit base, with earnings taking the place of deficits.

That will not be attained until the producing and refining divisions of the industry take control away from the marketing end or rather from that fraction of the marketing end which now dictates prices and eliminates profits from the producer and refiner and stockholders.

The remedy is simply to stop selling at a loss, to book no orders unless there is a profit in them.



S.R. DRESSER MANUFACTURING CO.
BRADFORD, PENNA.

Solid CO_2 May Be Made at Gasoline Plant at Low Cost

* * * * * *

By Hugh Lamberth*

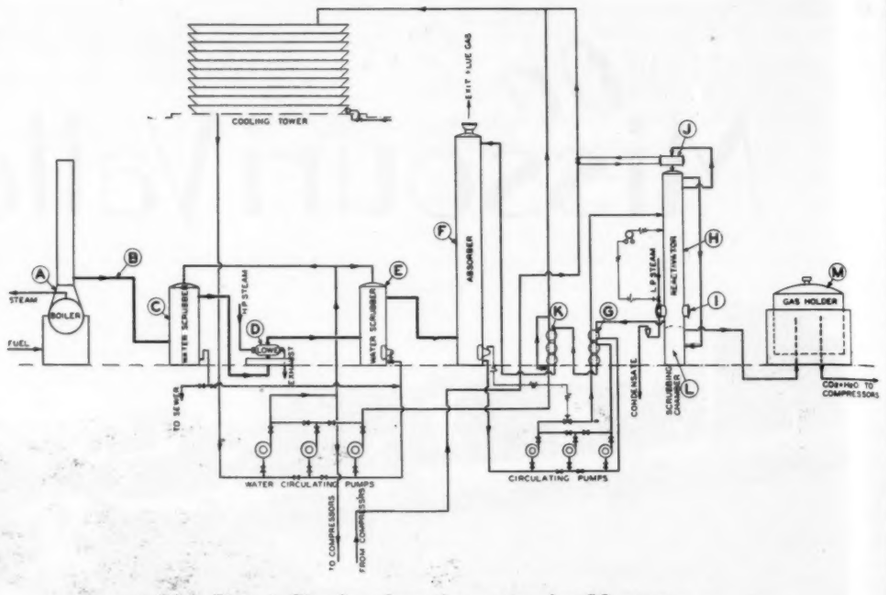


Plate 1. Showing absorption system for CO_2 gases.

* * * * * * * * * * * *

The subject of this paper is one of rapidly growing general interest and one, I believe, of especial interest to the natural gasoline industry. The manufacture of CO_2 as a by-product to existing gasoline plants as an additional source of revenue, or utilization of existing equipment and personnel is a self-contained snigle product manufacturing plant are entirely feasible.

There exists today a great deal of misconception as to economics underlying manufacture and salability of carbon dioxide in its various forms. This misconception is due primarily to the newness of the large-scale commercialization of CO_2 manufacture and its rapid growth as an industry, and to the sparseness of literature to date. The potential market is great but as yet largely undeveloped and hence current consumption is low.

It will be my purpose here to clarify this angle generally, as well as to describe current methods of recovery, liquefaction and solidification. The liquid and gaseous carbonic business has of course been established for many years, the principal use in the past being that of carbonating beverages. The use has been limited and production methods costly. Solid carbon dioxide was first manufactured and sold as such in 1925, although it had been produced experimentally prior to that time. Its production has increased from approximately 250,000 pounds in 1925 to an estimated 85,000,000 pounds in 1931.

The initial work in solid CO_2 manufacture was carried ont by refrigerating engineers generally. Development work has therefore been predominantly in the liquefaction and solidification or compression end. The recovery or absorption end has not yet reached a high stage of development as witnessed by the fact that the large majority of existing recovery plants employ absorption towers filled with coke, steel shavings, tile, etc.

The absorption plant methods are at about the same state of development now that the natural gasoline plant equipment was 8 or 10 years ago. This, however, is beginning to change rapidly, and future development work will no doubt proceed on grounds established in the natural gasoline industry. It appears that the greatest economy in production costs remain to be effected from this angle.

Occurrence and Sources of CO_2

The Bureau of Standards describes carbon dioxide as being a colorless, odorless gas at room temperature and atmospheric pressure. It occurs in atmosphere to the extent of about 0.03 per cent by weight, is a product of combustion and respiration, and a by-product of fermentation and of many chemical processes. It can exist as a solid at atmospheric pressure only because of its very low temperature. Carbon dioxide cannot exist as a liquid at atmospheric pressure. Only when its pressure is equal to or greater than 75.1 pounds per square inch absolute and its temperature —69.9° F. (the triple point) or higher can carbon dioxide exist as a liquid. Hence, instead of melting to liquid as water ice does at atmospheric pressure, carbon dioxide sublimes; that is, it passes directly from the solid to the gaseous state.

Table 1, following, shows some of the physical properties of carbon dioxide at different temperatures and pressures.

TABLE 1

Temp., °F.	Pressure, lbs./sq. in. abs.	Density liquid	Lbs./cu. ft. vapor
Liquid Vapor			
*87.8	1,066	28.96	28.96
77	933	44.06	14.93
59	738	51.06	9.86
41	576	55.76	7.06
32	505	57.74	6.01
23	442	59.55	5.14
5	332	62.81	3.76
—13	244	65.71	2.73
—31	174	68.56	1.95
—49	121	70.83	1.36
†—69.9	75.1	73.54	0.86
Solid Vapor			
—69.9	75.1	94.42	0.8320
—76	59.4	95.01	0.6849
—85	41.7	95.81	0.4832
—94	28.7	96.75	0.3365
—103	19.5	97.17	0.2316
—110	14.2	97.64	0.1711
—112	13.0	97.77	0.1467
—121	8.5	98.33	0.1044
—130	5.4	98.78	0.0679
—139	3.4	99.19	0.0433
—148	2.0	99.59	0.0267

*Critical point. †Triple point.

Sources and supply of carbon dioxide are literally inexhaustible. For commercial use CO_2 may be obtained as follows: (a) As a by-product of fermentation processes, (b) by decomposition of alkaline earth carbonates, (c) by purification of gas from natural CO_2 wells, and (d) by combustion.

In consideration of any of these sources the purity of the finished product cannot be too strongly stressed. A prolific source of practically pure CO_2 might be worthless due to extensive and costly means required for preparation of a marketable finished product. The trade demands an odorless, colorless and dry product. Liquid CO_2 must be 99.5 per cent pure at the top of the cylinder. This requires gas to be 99.8 per cent pure or better.

Typical of fermentation sources is the production of CO_2 from alcoholic fermentation gases as found in a brewery or alcohol distillery. Aside from the considerations of continuity of operation and limited production of such distilleries at this time, the economics of such an application are usually unfavorable due to expensive purification requirements. It is usual to treat such gases with any or all of the following for proper purification: Sulphuric acid, reactivated carbon, calcium chloride, pumice stone and potassium permanganate.

Alkaline earth carbonates such as calcium carbonate and magnesium carbonate sometimes yield as high as 40 per cent CO_2 by weight of the original material. Acid decomposition is too expensive to consider unless CO_2 is produced as a by-product to other valuable products. Decomposition of limestone by heating in pot type or rotary kilns does not always product a desirable gas in addition to the gas being contaminated with products of fuel combustion and dust. Dust removal, scrubbing and purification presents a real problem here.

(Continued on Page 92)

*Read before California Natural Gasoline Association at Los Angeles.

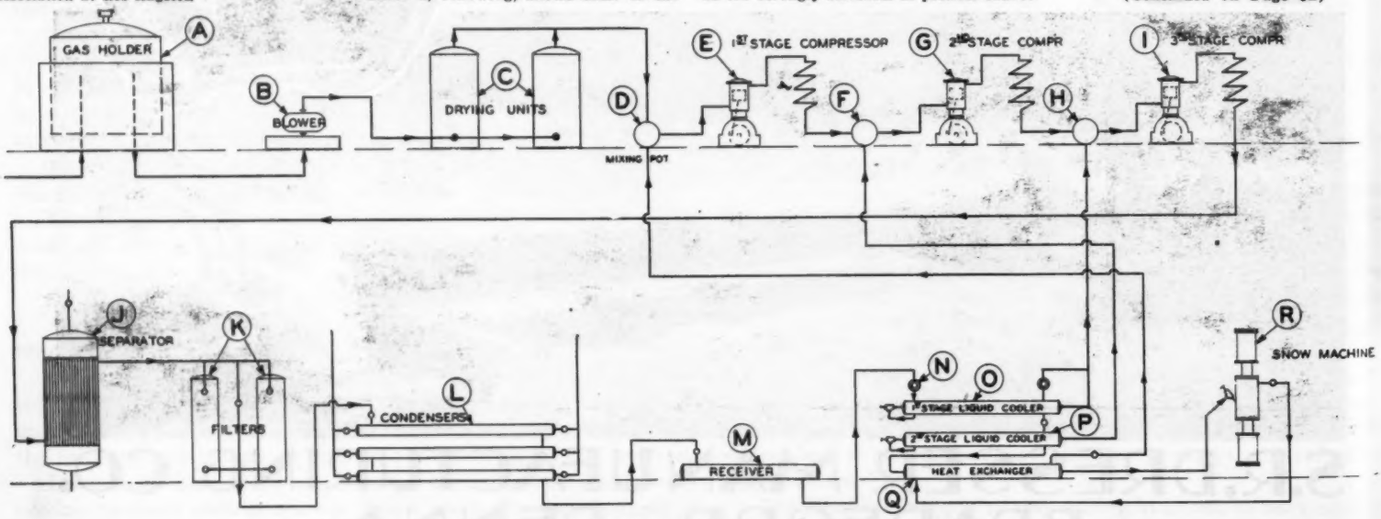


Plate 2. Compressors and snow machine for manufacture of solid CO_2.

Geological Societies to Hold Meeting

Petroleum Geologists, Economic Paleontologists and Mineralogists and Geophysicists to Meet in Oklahoma City

By L. G. E. Bignell
Petroleum Engineering Editor

The seventeenth annual meeting of the American Association of Petroleum Geologists is to be held in Oklahoma City, Okla., March 24, 25 and 26, and running concurrently will be the sixth annual meeting of the Society of Economic Paleontologists and Mineralogists, and the third annual meeting of the Society of Petroleum Geophysicists. All meetings of the A.A.P.G. will be held in the newly completed Biltmore Hotel, while the paleontological and geophysical sessions will be held in the Colonial Hall, Huckins Hotel.

L. P. Garrett
President, American Association of Petroleum Geologists

Following the very successful meeting of the Geological Society of America in Tulsa in December it is anticipated that the Oklahoma City meeting will draw a good crowd and the program arranged warrants the attention of every one interested in petroleum geology.

Sidney Powers
Past President, American Association of Petroleum Geologists

The general committee is in charge of Irving Perrine, chairman, Oklahoma City, assisted by A. H. Richards, W. H. Atkinson, G. C. Maddox, R. M. Whiteside and J. T. Richards. A very complete program has been under the charge of various other committees such as the technical, reception, entertainment, trips, finance, publication, registration, ladies' entertainment, publicity, exhibits, and golf, so a well rounded out meeting is assured.

Preconvention Meeting

There will be a preconvention meeting on Wednesday, March 23, when the executive committee and several of the standing committees of the association meet to discuss policies for the coming year.

J. F. Owens, president of the Chamber of Commerce, Oklahoma City, will make the address of welcome at 10 a.m., Thursday morning, in the Civic Room of Biltmore Hotel and immediately after the technical sessions will begin.

The first group of papers will be devoted to Mid-Continent and Gulf Coast problems with Frank R. Clark, second vice president of the A.A.P.G. presiding.

Frank R. Clark
Second Vice President, American Association of Petroleum Geologists

Papers by Ira H. Cram, W. W. Clawson and D. A. McGee, L. L. Foley, L. C. Case, Victor Cotner and H. E. Crum, Urban B. Hughes and M. G. Cheney and Sidney L. Harris are scheduled for this morning meeting. The session is continued through the afternoon dealing with the same class of subjects at which time E. H. Sellards, Lon D. Cartwright, Jr., R. E. Rettger, J. Ben Carsey and J. E. Morero, J. W. Beebe, Philip B. King, H. E. Minor and Marcus A. Hanna, M. G. Cheney, H. J. McLellan, E. A. Wendlandt and E. A. Murchison, Watson H. Monroe, C. L. Moody, C. L. Dale and Josiah Bridge, W. Armstrong Price, A. W. Weeks and W. C. Spooner will deliver papers. L. P. Garrett, president of the A.A.P.G. will preside at Thursday afternoon's meeting.

Friday Sessions

F. H. Lahee will preside at the technical session on March 25 when geological aspects of petroleum engineering will be discussed by H. R. Brankstone, W. B. Gealy and W. O. Smith, R. W. Brauchli, R. L. Clifton, Harold S. Thomas, John G. Bartram, C. V. Millikan, D. R. Snow, and Jan Versluys.

In the afternoon session Sidney Powers, will preside and it will be devoted to miscellaneous subjects with papers presented by T. C. Hiestand, Donald C. Barton, Wallace E. Pratt, Max W. Ball, Henry A. Ley, C. E. Dobbin, Willard F. Bailey, R. B. Newcombe, Eugene A. Stephenson, A. E. Brainerd, H. L. Baldwin, and I. A. Keyte, T. S. Lovering and J. Harland Johnson, Charles S. Lavington, E. W. Kramper, Harley S. Gibbs, J. A. Taff, Robert M. Whiteside (2), and Howard S. Bryant.

L. C. Decius
First Vice President, American Association of Petroleum Geologists

On Saturday morning the miscellaneous papers session will be continued, presided over by L. C. Decius and devoted to discussions by L. C. Snider, J. Whitney Lewis, Karl F. Hasselmann, F. G. Clapp, R. C. Beckstrom, Charles Bohdanowicz, Henry de Cizancourt, E. Fossa-Mancini, William J. Millard, R. B. Harkness, L. C. Snider and Linn M. Farish and H. de Cizancourt.

F. H. Lahee
Third Vice President, American Association of Petroleum Geologists

Authors of these papers live in all parts of the United States, in Cuba, Poland, Holland, Paris, Argentina and Canada. The geological discussions will therefore be world wide in character and present much information of interest to the industry at this time.

On Friday the Society of Petroleum Geophysicists will hold its technical session in the Colonial Hall of Huckins Hotel and papers by William M. Barret, T. L. Allen, O. C. Lester, Donald C. Barton, Paul Weaver, M. M. Slotnick, Burton McCollum, W. P. Jenny, E. G. Leonardson, and E. E. Rosaire will be presented.

In the afternoon session Eugene McDermott, O. C. Clifford, Jr., E. E. Rosaire and M. E. Stiles, Dart Wantland and C. A. Heiland, and two other papers by Dr. C. A. Heiland will be presented.

Economic Paleontologists

The Society of Economic Paleontologists and Mineralogists will hold its technical session in the Colonial Hall of Huckins Hotel on Thursday morning at which time papers by J. A. Cushman and E. R. Applin, Hans E. Thalmann, H. C. Vanderpool, C. I. Alexander and J. P. Smith, Frank H. Gunnel, Julia Gardner and Edgar Bowles, Julia Gardner, H. B. Stenzel (2), James B. Dorr, W. H. Tay-

(Continued on Page 70)

Donald C. Barton
President, Society of Petroleum Geophysicists

Charles E. Decker
President, Division of Paleontology and Mineralogy

OIL INDUSTRY MUST RAISE ITS PRICE LEVEL

(Continued from Page 9)

keeping in mind the proper relationship between the cost of the crude and the net back at the refinery on gasoline.

Under such a plan the crude oil producer would be assured of better prices on a rising gasoline market and the refiner could afford to pay more for the crude as his net back to the refinery from gasoline warranted.

The industry must realize quickly that a higher price level for both crude oil and gasoline and other refined products is absolutely necessary if the companies wish to remain in business. Present prices mean a repetition of the losses of last year. Neither the government nor the public expects the oil industry to operate at a loss. Raising prices to a level which will insure a reasonable return on investment and operation, and maintaining them at such a level, is merely good business and cannot be criticized by anyone.

Should Raise Crude Prices

The crude oil producer is entitled to better prices for his product. He certainly has not received it for a long time. Crude oil prices should be raised and quotations for gasoline and other products marked up accordingly to a level which will permit entries on the ledger in black ink instead of red.

The idea that $1 or $1.25 crude would start a wild orgy of wildcat drilling indicates a lack of knowledge of present conditions. Outside of the proven area of the East Texas Field, where would an oil man be willing to spend a lot of money wildcatting for $1 or $1.25 crude? It requires a lot of money to drill in wildcat areas and $1 or $1.25 crude is not much of a lure in this hazardous undertaking.

High Spots in Field News

GULF COAST

East Hackberry and Lost Lake extended. Additional wildcat developments started and work resumed in several coastal areas.

NORTH LOUISIANA, ARKANSAS, MISSISSIPPI

Two good gas wells in Jackson Field. Only dry hole reported in North Louisiana. Setback for Southwest Zwolle district.

OKLAHOMA

Eight new locations in Oklahoma City Field. Important changes in proration rules over State. Fish Pool, Seminole County, shows increased activity.

SOUTHWEST TEXAS

Showing in Southwest Texas wildcats and semiwildcats, one in Southern Live Oak County 20 miles from production. Good core in Williamson County.

CALIFORNIA

Unitization plan considered for Dominguez area. Failure of State operators to reduce production leads to accumulation of stocks. Sharkey Bill chief topic.

EAST TEXAS

Lathrop area extended mile north and Joiner area 2,000 feet southeast. Now 4,532 completions in East Texas, 89 locations in week and 92 completions.

ROCKY MOUNTAIN AREA

Eunice, New Mexico, well deepened, increases flow. New location on Rattlesnake Dome. Greasewood completion proves small well. New locations in Montana. Two tests in Utah.

KANSAS

New potentials indicate loss in daily production to State of 25,000 bbls. daily in Ritz-Canton area. Allowable in Central Western area reduced from 15 to 10 per cent, due to new wells.

WEST AND NORTH TEXAS AND PANHANDLE

Loving County competes with Ward County in activities. Schleicher County has improved outlook. Fourteen locations in Ranger area and 22 in Wichita Falls district.

Osage Leases Sell At Bargain Prices To Few Purchasers

The auction sale of Osage Indian oil leases held in Pawhuska Tuesday, March 21, brought the lowest prices of any such sale in many years, if not in all time.

The auctioneer knocked down the properties at whatever he could get, and $50 bids for 160-acre tracts predominated at the morning sale, while the more desirable properties on the west side of the county fared little better, relatively speaking.

Tracts sold and purchasers were as follows:

MORNING SALE

	Bonus
J. H. Page, SE Sec. 30-20-12	$50
R. F. Duffield, SE Sec. 28-22-12e	50
R. F. Duffield, SW Sec. 28-22-12e	50
National Ref. Co., NW Sec. 30-29-12e	50
National Ref. Co., SW Sec. 30-29-12e	300
Ray Branstetter, SE Sec. 28-22-11e	250
Ray Branstetter, SW Sec. 28-22-11e	50
Ray Branstetter, NW Sec. 33-22-11e	50
J. R. Higgins, SE Sec. 29-28-11e	50
J. R. Higgins, NW Sec. 36-21-10e	50
Midco Oil Corp., NW Sec. 17-22-10e	50
Midco Oil Corp., SE Sec. 17-22-10e	50
Midco Oil Corp., SW Sec. 17-22-10e	600
Winona Oil Co., NE Sec. 21-21-9e	50
Winona Oil Co., NW Sec. 21-21-9e	50
Winona Oil Co., SW Sec. 21-21-9e	50
A. G. Oliphant, NE Sec. 26-21-9e	300
Carl Mathewa, NW Sec. 26-21-9e	1,000
Ohio-Osage Oil Co., SE Sec. 28-21-9e	100
Carl Mathews, SW Sec. 26-21-9e	350
Guy Buchner, NE Sec. 6-26-9e	50
Guy Buchner, NW Sec. 6-26-9e	50
Guy Buchner, SE Sec. 6-26-9e	50
Guy Buchner, SW Sec. 6-26-9e	50
W. A. Moore, NE Sec. 10-26-9e	50
W. A. Moore, NW Sec. 10-26-9e	50
G. P. Labadie, NE Sec. 14-24-8e	150
G. P. Labadie, SE Sec. 14-24-8e	50
G. P. Labadie, NE Sec. 23-24-8e	50
Guy Buchner, SE Sec. 1-26-8e	50

AFTERNOON SALE

National Ref. Co., NE Sec. 18-26-8e	50
National Ref. Co., NW Sec. 18-26-8e	50
National Ref. Co., SE Sec. 18-26-8e	50
Anna Finley, NE Sec. 9-23-7e	50
A. G. Oliphant, NW Sec. 13-23-7e	17,500
A. G. Oliphant, SW Sec. 13-23-7e	1,700
National Ref. Co., SW Sec. 1-24-7e	50
National Ref. Co., NW Sec. 13-24-7e	50
Lewis Prod. Co., SW Sec. 25-24-7e	1,100
Lewis Prod. Co., NE Sec. 33-24-7e	850
Lewis Prod. Co., NW Sec. 33-24-7e	850
Lewis Prod. Co., NW Sec. 34-24-7e	850
National Ref. Co., NW Sec. 2-25-7e	50
T. O'Herin, NE Sec. 26-25-7e	50
A. G. Oliphant, NE Sec. 28-28-7e	200
Anna Finley, NW Sec. 35-27-6e	50
National Ref. Co., NE Sec. 4-25-3e	50
Total	$27,900

Late Fields

OKLAHOMA

Eight new locations were announced in the Oklahoma City Field indicating an upward trend in developments. Seven of the new wells were staked by the Slick-Urschel interests on the Classen-Edwards lease in Section 3-11-3w, in the north end of the field. The locations are No. 7 in the SE cor. SE NW, No. 13 in the NE cor. NE SW, No. 14 in NE cor. SE SW, No. 15 in SE cor. NW SW, No. 16 in the NE cor. SW SW, No. 17 in the NW cor. SE SW, No. 18 in the SW cor. NE SW. The eighth location is Phillips Petroleum Co.'s No. 1 Pumphrey, SE cor. SW NE, Section 3-11-3w, being on Block 19 of Walnut Grove addition.

Two producers were added to the new field 7 miles south and west of Duncan in Stephens County during the week. Two new locations were also announced, but activity was delayed by a windstorm which wrecked three of the derricks.

Curtis Oil Co. and others' No. 2 Dare, NW cor. NE SE, Section 2-2s-8w, swabbed and flowed 150 bbls. of oil in 14½ hours from broken sands between 1,362-1,400 feet. It is the eighth producer in the new area. G. L. Pace's No. 2 A. Green, SE cor. SW SW NE, Section 2-2s-8w, swabbed 100 bbls. of oil in 12 hours with an estimated 2,000,000 feet of gas a day. The well is estimated at 75 bbls. a day on the pump. Production was from sands at 1,417-30 feet.

Continental Oil Co.'s No. 2 Dare, NW cor. SW SE, Section 2-2s-8w, on the southwest edge of the field, was showing for a small producer in sands at 2,093-2,122 feet. The well was swabbing around 50 bbls. of oil a day. Tubing has been landed in the hole to shut off cavings. It is the only well in the new field to produce from this horizon.

J. D. Loofbourrow's No. 1 Dare, SW cor. NW SW SW, Section 1-2s-8w, is a new location southeast of production, and the completed derrick was blown down in the storm. Crane & Rankin's No. 1 Dare, SW SW NW, Section 1-2s-8w, was almost a completed derrick when it was blown down. Ed Chamberlain's No. 1 C. P. Parker, NE cor. SE SE, Section 11-2s-8w, lost the derrick in the storm. It is about a mile south of the center of the activity.

Work was quiet in other parts of Stephens County. The Carter Oil Co. is assembling a block of acreage around Sections 26 and 27-1s-4w, on the east side of Stephens County.

Hall & Briscoe and others' No. 1 in Block 18, Central addition, in the SW cor. SE, Section 3-11-3w, flowed 9,026 bbls. of oil in three hours from the Wilcox sand at 6,297-6,480 feet. The gas was estimated at 40,000,000 feet a day.

Production from the Oklahoma City Field on March 20 was 162,842 bbls. from 206 wells and on March 21 the field made 91,394 bbls. from 167 wells.

KANSAS

The Magnolia Petroleum Co.'s No. 1 Bayer, SW cor. NW, Section 7-20-10w, Rice County, was drilling deeper at 3,415 feet, after finding a showing of water at 3,375 feet. The test is about a quarter of a mile from the discovery well in the Isern Pool, and production was expected around 3,300 feet. The test indicates the production in this area will be spotted.

Continental Oil Co.'s No. 1 Horton, SE cor., Section 10-25-1, is spudding. It is in the Goodrich Pool, in Sedgwick County, which was discovered about three years ago but not fully developed.

In the Wright Pool, near Valley Center, in Sedgwick County, Gypsy Oil Co. and others' No. 1 Corr, SE cor. NW, Section 12-26-1w, was pulling big pipe preparatory to drilling into the pay horizon at a total depth of 3,314 feet. The test is a quarter of a mile from the nearest production. Same operators were rigging up at No. 1 W. L. Rall, in Section 7-26-1, preparatory to plugging the well back to the Kansas City lime from the Simpson dolomite. The well has been pumping around 8 bbls. a day and is 3 years old.

In the north end of the Voshell Pool,

(Continued on Page 91)

TEXAS WILL NOT ENTER TRI-STATE AGREEMENT

AUSTIN, Tex., Mar. 19.—There will be no renewal of the Tri-State oil proration agreement for the current year, C. V. Terrell, chairman of the Texas Railroad Commission, said when asked about the conference March 25 with Thurman Hill of the Kansas Corporation Commission and a representative of the Oklahoma Conservation Commission, as called by Mr. Hall.

The conference will be held here through courtesy to Mr. Hill, it was stated by Mr. Terrell, but the Texas Railroad Commission will not become a party to any proration agreement.

Mr. Terrell said the new Texas proration law forbids the commission considering market demand or taking the State as a whole in fixing allowables, but that each pool must be considered separately and actual physical waste only to be considered. This, he pointed out, precludes any agreements with other states.

MAGNETIC STORM

The Tucson, Ariz., observatory of the U. S. Coast and Geodetic Survey reports moderate magnetic storm started at 7 p.m. (C.S.T.) on the eighteenth and ended at 11 p.m. on the nineteenth. The telegrams follow:

"Storm began eighteenth. One. Moderate."

"Storm ended nineteenth. Five."

WILL WELD OLD LINE

Kelly-Dempsey & Co. of Tulsa has been awarded a contract to take up a 6-inch screwed line of the Phillips Petroleum Co. between Oklahoma City and Earlsboro, Okla., take off the collars and weld the line. The line is about 42 miles long.

LOWERED LIFTING COSTS

Years of continuous study and investigation of pumping equipment and conditions encountered in thousands of wells, has enabled the Axelson Manufacturing Company to produce a line of pumping equipment which has, to a surprising degree, increased production and lowered operating costs on innumerable installations. Conclusive tests have proven certain combinations of Axelson equipment will greatly reduce undesirable friction and give more efficient valve travel with resultant increased production, smoother operation and decreased rod stress.

During the past two years, when operating costs have been given the utmost attention from an economic standpoint, it is significant that many production men have turned to Axelson products.

For more than a decade, FRICK-REID STORES have stocked and serviced Axelson equipment, and through the intimate knowledge and experience thus gained, FRICK-REID men have been able to render valuable assistance in helping to solve many perplexing production problems confronting the Producing Division of the Petroleum Industry.

A list of points where FRICK-REID Stores are established is given below. Our representatives will be glad to give information regarding Axelson Equipment, and at all stores a complete service for quickly overhauling or relining of Axelson Working Barrels is maintained.

ARKANSAS:
El Dorado

KANSAS:
Eldorado
Wichita
Winfield

KENTUCKY:
Ashland
Glasgow
Owensboro

LOUISIANA:
Shreveport

MICHIGAN:
Mount Pleasant

NEW MEXICO:
Hobbs

NEW YORK:
Bolivar
Painted Post

OHIO:
Marietta

OKLAHOMA:
*Ardmore
Bartlesville
Blackwell
Bristow
Covington
Cushing
Duncan
Healdton
Oklahoma City
Okmulgee

OKLAHOMA—*Cont.*
Seminole
Tulsa
Wewoka

PENNSYLVANIA:
Bradford
Brookville
Clarion
Pittsburgh
Waynesburg

TEXAS:
*Amarillo
*Beaumont
Best
Big Spring
Borger
Breckenridge

TEXAS—*Cont.*
*Dallas
Electra
*Fort Worth
Houston
Kilgore
*Longview
Luling
Mexia
Pampa
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Loving County Now Getting Attention

Three Producers Completed in Wheat Field. Schleicher County Outlook Improved. Thirty-Six Locations in Ranger-Wichita Falls Area

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 21.—Loving County is now a close competitor of Ward County in regard to activities in West Texas, and has been one of the most active counties in the district during the past year. Three producers were completed in the Wheat Field, in this county, during the week. However, all of them were small wells. Phillips Petroleum Co.'s No. 3 Wheat was the best producer of the three, and it flowed only 205 bbls. daily after shooting with 132 quarts from 4,294-4,330 feet. The pay was logged at 4,295 feet. Kenneth Slack's No. 1 Lind is flowing only 30 bbls. daily from a total depth of 4,265 feet after shooting with 110 quarts from 4,222-63 feet. Harry Adams' No. 1 Wheat made 107 bbls. per day following a shot of 200 quarts from 4,360-4,403 feet. Total depth is 4,396 feet.

Another outlet for this field is under construction at Arno, a switching point on the railroad near the field. The Mentone Oil & Refining Co. is erecting a 1,000-bbl. daily capacity refinery at this place, and will process crude oil from the Wheat Field. The field is producing a daily average of around 3,170 bbls. and is not under proration. Crude has been going to the Paso-Tex and Rio Grande Oil Companies' refineries at El Paso. The crude is high gravity, and free of sulphur.

Ector County Test

D. D. Thomas of San Angelo, James L. Green and R. L. York, both of Midland, are now moving in material for a test on the Will Edwards ranch, in Section 38, Block 43, Township 3s, T.&P. Survey, in the southeastern corner of Ector County. It is 3½ miles east of the Simms Oil Co.'s dry hole in Section 44. This test was abandoned at 3,733 feet. The owners of the new test have leased 8 sections in this area, and will drill a 4,500-foot test in the southwest corner of the southwest quarter of the section. It is approximately 10 miles south of Weekly Oil Corp. and others' No. 1 Cowden, which is now plugging back to complete as a gasser. It is in Section 33, Township 2s, same survey. Six and one-half miles north of the new location a "duster" was formerly drilled to a total depth of 3,502 feet. It will be an interesting test for this part of the county.

Schleicher County

Schleicher County is now receiving some attention, appearances having changed in regard to the area between the Eastland Oil Co.'s No. 1 Tisdale and the old Gray-Robinson test, the structural formations proving more interesting between these two tests, at least, sufficiently, to cause the leasing of 10,000 acres by one of the major companies.

Crockett County

Magnetometer highs are said to be responsible for the majority of the recent heavy leasing in Crockett County, although the companies no doubt would have purchased considerable acreage with the intentions of holding it for later deeper drilling regardless of the instrument findings.

Gaines and Andrews

Gaines and Andrews Counties have been getting a little attention of late, with a few acreage transactions having been made, but as a whole the two counties have been lying dormant like the majority of the West Texas counties during the past year, and an active lease play is not expected to transpire in them for some time.

Winkler Wildcat

Sid Richardson and others' No. 1 Halley, in Section 25, Block B-12, southern Winkler County wildcat, is drilling at 2,990 feet. At 2,957 feet it swabbed 12½ bbls. of oil, and made 500,000 feet of gas daily. The showings made in this test, and the probability that it will make a well, will lead to more activities in northern Ward and southern Winkler Counties.

Ward County

Renaud and Prettyman, of Fort Worth, have made a tentative location for a test to be drilled in the NE cor., Section 4, University lands in the northern part of Ward County, approximately 3 miles south of Wickett, and offsetting the Gulf Production Co.'s Hutchings block.

Weekly Oil Corp. and others' No. 1 Cowden, in Section 33, Block 43, Township 2s, T.&P. Survey, Ector County, was plugged back 50 feet from former total depth of 4,873 feet, and cemented plug to complete for a gas well. Gas sand was logged from 3,824-27 feet, sufficient gas being struck to blow tools up the hole and lodge them. Gas from the well will perhaps be used in drilling another test on the company's block, but another test is not expected to be started in the near future.

West Texas Production

Accumulative production for 15 West Texas counties amounts to only slightly over 516,600,000 bbls. to date, or about four times as much as East Texas has produced in its short span of life, Winkler County and the Yates Pool, Pecos County, being the only two areas which have produced more oil than the latest major pool of Texas.

Winkler County has produced over 156,000,000 bbls., and the Yates Pool has produced over 137,500,000 bbls. The latter was opened in October, 1926, and the former in 1925. No pools of major importance have been discovered in the Permian Basin since these two pools. The Penn Pool, Ector County, discovered in the latter part of 1929 was the largest since the Yates Pool, although the deep production discovered in the Big Lake Field, Reagan County, is of major importance. However, only nine deep wells have been drilled in that pool since the first was completed in December, 1928, and the companies holding leases in the field, Big Lake Oil Co. and Group No. 1 Oil Corp. and Continental Oil Co., will go slow on drilling deep tests in the field, especially while there is an oversupply and large potential in sight at the present.

RANGER AND WICHITA FALLS

There were 14 locations staked in the Ranger district during the week, 6 of these in Shackelford, 1 in Throckmorton, 1 in Palo Pinto, 1 in Eastland, 1 in Coleman, 1 in Callahan and 1 in Brown County, activities in that county having picked up during the past two weeks. There were 14 locations staked in Young County, 5 in Archer, 1 in Wilbarger, 1 in Montague and 1 in Denton County. These latter counties are in the Wichita Falls district. There were 14 completions reported in this district for the week.

O. V. Beck & Co. have taken over the Collier Production Co.'s No. 1 McGaughey test in north Montague County and will drill it deeper from the present total depth of 1,260 feet. It is now standing too deep for the sand found in Bridwell Oil Co.'s No. 1 Brown, 1 mile to the south, and a north extension well of the Nocona Pool, but is hoped to pick up a deeper pay.

M. M. Bradley and others' No. 1 Garvey, in the southeastern part of Archer County, three-quarters of a mile south of Dean, Beer and others' No. 1 Herron, which was abandoned above 1,700 feet, is to be a Canyon test.

United Producers Co.'s No. 1 Wilson,

(Continued on Page 71)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending March 21

ANDREWS COUNTY

Company, well, farm name, section and block— Remarks—

Fuhrman Pet. Co.'s No. 1 Boner, 1,320 ft. from N and 440 ft. from W, Sec. 24, Blk. A-43, P.S.L. .....Drlg 1,465 ft.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.....S.D. 1,935 ft.

H. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur. .....S.D. 1,302 ft.

Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 14, Blk. G-15, G.C.& S.F. Sur. .....S.D. 2,900 ft.

Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 miles south Alpine .....S.D. 1,750 ft.

COCHRAN COUNTY

Penn Oil Co.'s No. 1 Slaughter, C Labour No. 80 of League 139, Carson County School Lands .....T.D. 5,052 ft.

CONCHO COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E, Sec. 163, T.&N.O. Sur. .....T.D. 1,110 ft.; to start up.

CROCKETT COUNTY

Coleman & Moore's No. 1 Ferner, 2,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.....Spudded and S.D.

CULBERSON COUNTY

Harris-Hann's No. 1 Seay, 1,980 ft. from N and E of Sec. 16, Blk. 54, P.S.L. .....Location.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW, Sec. 46, Blk. M, E.L.&R.R. Sur. .....To resume drilling.

ECTOR COUNTY

Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W, Sec. 33, Blk. 43, Twp. 2s, T.&P. Sur. .....T.D. 4,430 ft.; to plug back for gas well.

M. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G. M. M.Dr.&A. Sur. .....Set casing 3,270 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.F. No. 7,247 .....S.D. 2,257 ft.

FISHER COUNTY

Condor Petroleum Co.'s No. 1 Steele, 660 ft. from S and 330 ft. from W of W half of SE Sec. 210, B.B.B.&C. Ry. Sur. .....Rig.

Cranfill & Reynolds' No. 1 George, 400 ft. from N and 380 ft. from E, Sec. 200, Blk. 1, B.B.B.&C. Sur.....Drlg. 4,740 ft.

Southern Oil Corp. of America's No. 1 Wm. Flannigan, 240 ft. from E and 165 ft. from W line of S 20 acres of SW, Sec. 20, B.B.B.&C.R.R. Sur. .....Drlg. 2,725 ft.

GLASSCOCK COUNTY

Mann et al's No. 1 fee, 330 ft. from N and 1,980 ft. from E, Sec. 27, Blk. 34, Twp. 3s, T.&P. Sur. .....Fishing 900 ft.

(Continued on Page 75)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending March 21

BRISCOE COUNTY

Company, well, farm name, section and block— Remarks:

Humble O. & R. Co.'s No. 1 C. Adair est., 2,500 ft. from N line, 2,100 ft. from E line, Sec. 7, Blk. G-6 .....Drlg. 1,700 ft.

CARSON COUNTY

Continental Oil Co.'s No. 4 Block, 330 ft. from N, 990 ft. from E, Sec. 111, Blk. 4, I.&G.N. Sur. .....T.P. 3,020-30 ft; I.P. 115 bbls. first 24 hrs.; T.D. 3,085 ft.

H. A. M. Oil Co.'s No. 2 Cooper, 330 ft. from S and E, Sec. 5, Blk. 9, I.&G.N. Sur. .....Location.

Skelly Oil Co.'s No. 27 Schaffer, 1,265 ft. from S and 440 ft. from W, Sec. 88, Blk. 4, I.&G.N. Sur. .....Drlg. 1,100 ft.

Texhoma Nat. Gas Co.'s No. 1-S Burnett, center SE, Sec. 94, Blk. 5, I.&G.N. Sur. .....Drlg. 410 ft.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands .....T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. .....S.D. 2,508 ft.

Downey et al's No. 1 Beasley, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur. .....Rigging up.

DEAF SMITH COUNTY

Western Union Oil Co.'s No. 1 Farwell, C NW, Sec. 18-3n-2e .....S.D. 275 ft.

GRAY COUNTY

Back & Barber's No. 1 Back, 660 ft. from S, 330 ft. from W, Sec. 140, Blk. 25, H.&G.N. Sur. .....Drlg. 2,325 ft.

Boyes et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. .....Spudded and S.D.

Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. .....S.D. 3,427 ft.

Danciger O. & R. Co.'s No. 3 Byrum, 330 ft. from N line, 330 ft. from E line, Sec. 188, Blk. 3, T.&N.O. Sur. ..Drlg. 3,065 ft.

R. B. Etter et al's No. 1 Chapman, 275 ft. from N line, 110 ft. from W line, S½ SW, Sec., of Blk. 26, H. &G.N. Sur. .....Spudded 50 ft.

Foster's No. 1 Webb, 330 ft. from S and W, Sec. 43, Blk. 25, H.&G.N. Sur. .....Spudded.

Graham et al's No. 1 Barrett, 990 ft. from N, 330 ft. from E, Sec. 112, Blk. 3, I.&G.N. Sur. .....Cellar.

Gulf Oil Corp.'s No. 1 Catlin, 2,310 ft. from N line, 330 ft. from E line, Sec. 27, Blk. 3, I.&G.N. Sur. .....Drlg. 3,080 ft; T.P. 2,975 ft; 1-100 ft. oil in hole.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. 2-B, H.&G.N. Sur. .....S.D. 3,010 ft.; cleaned up fishing job.

Jewel Oil Co.'s No. 1 Meora, 330 ft. from S and W, NW SW, Sec. 106, Blk. 3, I.&G.N. Sur. .....Drlg. 3,180 ft.

Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. .....S.D. 2,620 ft.; estimated 4,000,000 ft. gas.

(Continued on Page 74)

Pipe Line Construction News

TEXAS PIPE LINE CO. SUPERINTENDENTS MEET

HOUSTON, Tex., Mar. 21.—The semi-annual conference of superintendents of the Texas Pipe Line Co., the Texas Pipe Line Co. of Oklahoma, the Texas-Empire Pipe Line of Texas and the Texas-Empire Pipe Line Co. (Delaware) was held in Houston for two days the past week. Those attending the conference, including a few visiting officials, were:

A. S. Bailey, vice president, Texas Pipe Line Co., Houston, chairman; O. R. Burden, superintendent, North Texas division, Texas Pipe Line Co., Wichita Falls; J. C. Colligan, superintendent of the Central Texas division, Dallas; C. O. Crouch, superintendent of the South Texas division, Houston; O. E. Stimson, superintendent of the Southeast Texas division, Beaumont; E. H. Davidson, superintendent of the West Texas and New Mexico division, Odessa; J. B. Haden, superintendent of the North Central Texas division, Fort Worth; T. J. Hannon, supervisor of tankage maintenance and construction, Houston; J. K. McGoldrick, vice president and general superintendent of the Texas Pipe Line Co. of Oklahoma, Tulsa; T. F. Reagan, superintendent of the northern division of the Oklahoma company, Tulsa; C. M. Shull, superintendent of the southern division of the Oklahoma company, Durant; A. D. Riley, district foreman of the Texas Pipe Line Co. of Texas, Dallas; H. L. Stewart, secretary-treasurer of the Texas Pipe Line Co. of Oklahoma and also the Texas-Empire Pipe Line companies, Tulsa; F. A. Stiver, general superintendent of the Texas-Empire companies, Tulsa; B. E. Hull, president, T. J. McMahan, vice president, R. B. McLaughlin, secretary, Oscar Wolf, chief engineer, J. H. Borchers, supervisor of telephones and telegraph, J. W. Emison, assistant secretary, H. A. Emmerson, mechanical engineer, L. F. Scherer, mechanical engineer, and G. W. Fox, secretary to the president, of the Texas Pipe Line Co., Houston; T. J. Donoghue, executive vice president of The Texas Company, Houston; J. H. Lapham, director of The Texas Corporation, New York; E. L. Newman, superintendent of the Texas-Empire Pipe Line Co. of Texas, Henderson, Tex.; E. R. Spencer, mechanical engineer of the Texas-Empire Pipe Line Co., Tulsa, and J. T. Rynd, chief oil dispatcher.

AUTOMATIC GRAVITY RECORDER

NEW YORK, Mar. 19.—Anglo-Persian Oil Co., Ltd., has received a British patent (No. 365,141) for a new type of apparatus for indicating and recording the specific gravity of liquids, particularly when under pressure in a pipe line.

The new instrument, it is stated, is particularly designed for hydrocarbon oils subject to continuing fluctuations of gravity which cannot be accurately determined from samples drawn under pressure and then measured by hydrometer at atmospheric pressure.

10-MILE LINE TO ELWOOD

LOS ANGELES, Calif., Mar. 19.—Capt. William Irvine is making preparations to construct a 10-mile pipe line from the Santa Barbara Mesa to the Bankline Oil Co.'s submarine pipe line at Elwood, Calif. Upon the construction of this line operators in the Santa Barbara Field will have an outlet for current production which, up to the present, has been shut in because of the absence of pipe line facilities.

TEXAS PIPE LINE LAW SUBMITTED TO COURT

By Neil Williams

HOUSTON, Tex., Mar. 21.—Arguments in the suit of five companies operating gas lines out of the Panhandle asking a federal injunction against the enforcement of the Texas common purchaser law as it affects gas purchases were heard before a three-judge federal court here March 17 and 18. Attorneys were granted 15 days in which to file briefs covering the case.

Plaintiffs in the suit are Cities Service Gas Co., Texhoma Natural Gas Co., Panhandle Eastern Pipe Line Co., North American Pipe Line Co. and Texas Interstate Pipe Line Co. Defendants named are Governor Sterling, James V. Allred, attorney general, and the State Railroad Commission. Circuit Judge James C. Hutcheson and District Judges Randolph Bryant and Duval West heard the arguments.

The petition of the plaintiff charged that the law as it compels the purchase of natural gas ratably is unconstitutional. It was claimed that the law not only interferes with internal commerce but also is a violation of the "due process law" of the Constitution.

The contention of the gas companies was that they do not need the gas they are compelled to purchase, and that the forced purchase is unfair, oppressive and outside the pale of natural law. Clarence Wharton, representing the Texhoma Natural Gas Co., pointed out that his company has vast holdings in Texas and enormous patronage in the Middle West, and stated:

"If we followed the dictates of this act, not only would we be buying gas from independents which we could produce ourselves, but if we stopped operation on our

(Continued on Page 89)

WILL BUILD 12-INCH LINE LONG BEACH TO SAN DIEGO

SAN DIEGO, Calif., Mar. 21.—W. F. Raber, president of the San Diego Gas & Electric Co. has announced that arrangements have been completed whereby this city will be supplied with natural gas through mains from Long Beach, service to start not later than September 1, next.

Construction of a 12-inch main will be started immediately, Mr. Raber said. Arrangements for the service were completed between representatives of the local utility and of the Southern Counties Gas Co.

The decision of the gas company to supply users with the natural product follows closely an order of the State Railroad Commission to lower both gas and electric rates in the community. The commission order also "strongly urged" the bringing of natural gas to San Diego. The company had been given a month to decide between the new service and an even lower service rate. Ten days ago an extension of time was given the company, resulting in today's decision.

The transmission line to San Diego will continue from Long Beach through Laguna Beach via San Clemente and the coast highway to San Diego, it is announced. The line will be about 115 miles long.

Mr. Raber announced that negotiations between his company and the Southern Counties Gas Co. have been under way for weeks.

Applications to the Railroad Commission for permission to distribute the natural gas and for rights of way through territory between Long Beach and San Diego also have been made, Mr. Raber said.

BUYING EQUIPMENT FOR NEW IRAQ LINE

NEW YORK, Mar. 21.—British and Continental equipment manufacturers are receiving orders and inquiries for supplies for the new Iraq pipe line and inquiries for pipe are being sent out in the United States, according to a summary in the current issue of London Petroleum Times.

"It appears," says this report, "that no time is to be lost by the Iraq Petroleum Co., Ltd., in connection with the fulfillment of its obligations with the Iraq government for the construction of the pipe line from Kirkuk to Haifa via Haditha, which is the British section of the line. Though no official information can be obtained, we learn from various trade sources that the company is making numerous inquiries for the supply of large-scale equipment. Most of this equipment is necessarily the type required before the actual operations with regard to the construction of the pipe line can be commenced.

"Among the first equipment to be required is that connected with housing and transport, and orders have already been placed with Messrs. Redpath, Brown & Co., Ltd., constructional engineers of London, for 60 temporary buildings, including garages, bungalows, hospitals, etc.

"Inquiries are also out for telegraph and telephone systems along the proposed route of the pipe line, as well as for transport trucks; some of these trucks have actually been ordered.

"In connection with the supply of the pipe itself, several firms have been asked to tender, and recently there was a meeting of the International Pipe Cartel in London, which considered the subject. Inquiries in the United States are being broadcast to the pipe manufacturing concerns by the Standard Oil Co. of New York, while the Standard of New Jersey is approaching several Continental manufacturers from The Hague. The French interests in the Iraq Petroleum Co. are the Compagnie Francaise des Petroles, and this company is asking for tenders among French interests, while, so far as England is concerned, the British mills of Stewarts & Lloyds and the British Mannesmann have been asked to quote. Under the terms of its 75-year concession, the Iraq Petroleum Co. is obligated to complete its line to the Mediterranean by the end of 1935.

"It is understood that deliveries of the pipe are to be spread over nine months, the initial supply to be made in July next."

SOVIET COMPLETES PIPE LINE

The basic work on the pipe line leading from Armavir in the North Caucasus to the Ukraine has been completed, according to reports from Moscow. The welding of the last stretch of 488 kilometers (303 miles) was completed on February 7. Twenty-three million rubles ($12,000,000) was spent on the construction of the line, which was built in 10 months. Building of this line marked the introduction of modern high-speed welding in Soviet pipe line construction. The Grozny-Tuapse line, another major Russian pipe line project, took three and one-half years to build.

GAS LINE TO BATH, N. Y.

BATH, N. Y., Mar. 19.—Petitions are in circulation among Bath gas consumers and will be presented to the Public Service Commission urging the granting of a franchise to the Southern Tier Gas Corp. to build its pipe lines from the Wayne natural gas field to Bath.

TULSA TO CARTHAGE LINE FRANCHISE BASIS

CARTHAGE, Mo., Mar. 21.—The Carthage city council has granted a 20-year franchise to supply natural gas here to J. N. Sloan of the Western States Utilities Co., Tulsa. The franchise will be presented to the voters for ratification April 5.

The Carthage Gas Co., Doherty subsidiary, has been operating here for six years without a franchise. Webb City and Carterville are also expected to grant Mr. Sloan a franchise.

Mr. Sloan signed a contract to install a distribution system and furnish gas to the city. His company, he said, is ready to construct a pipe line from Tulsa, through Miami, Okla., Galena, Kans., Joplin, Webb City, Carterville and Carthage. Bonds for the erection of a municipal plant at Miami just have been approved, and Mr. Sloan's company has a contract to furnish gas at the city gates.

RECEIVERS APPOINTED FOR MISSOURI-KANSAS

WILMINGTON, Del., Mar. 21.—Chancellor J. O. Walcott has appointed C. Ray Phillips of Chicago and Henry T. Bush of Wilmington as receivers for the Missouri-Kansas Pipe Line Co., and two of its subsidiaries, Frank P. Parish and Co. of Chicago, and the Kentucky Natural Gas Co. of Owensboro, Ky.

The receivership bill was filed by R. H. McWilliams, Jr., Co., Inc., of Chicago, a creditor in the amount of $5,000. The Missouri-Kansas Pipe Line Co. and the subsidiary companies consented to the appointment of receivers.

In a letter to stockholders of the Missouri-Kansas Pipe Line Co., officers of the company state the management consented to the appointment of receivers because the company, which has assets of about $18,000,000 in excess of its liabilities, is unable to meet certain maturing obligations by reason of the adverse circumstances under which the company has been compelled to do its financing.

The Missouri-Kansas Pipe Line Co. was organized in 1928 to develop gas lands near Kansas City, Mo. The last annual statement showed total assets of $28,000,000 and total liabilities and reserve, exclusive of capital stock and surplus of $9,731,000. The assets included an investment in the Panhandle Eastern Pipe Line Co., a natural gas transportation system of about 2,000 miles of pipe lines extending from the Texas Panhandle to Indiana, and 50 per cent owned by the Missouri-Kansas Pipe Co. It also has extensive pipe line properties in Kentucky and Indiana, including more than 6,000 miles of pipe line.

The bill of complaint charged that a bear raid of June 16, 1930, against the company's stock was carried on in connection with a conspiracy among antagonistic public utility interests to destroy the company and forced the company to sell a half interest in the Texas-to-Indiana project of the Panhandle Eastern to insure completion of that line.

This line is now completed and in conjunction with the lines of the Missouri-Kansas subsidiaries in supplying natural gas to about 89 communities in seven states, in addition to large deliveries to other pipe line companies and to industrial customers.

The letter to stockholders adds that the management will co-operate with the receivers and will devote its efforts to find a solution to the company's problems in a manner protecting the interests of stockholders.

Modern Devices Feature Continental Company's New Grease Plant

* * * * * *

By Bert H. Lincoln* and P. S. Showell†
Continental Oil Co.

In preparing greases in large quantities for shipment the handling of the grease ingredients and the finished packaged products is a problem of considerable moment. Each separate container must be accurately filled, weighed, transported and packaged, which may result in a high unit handling cost on the small packages even though it is possible to spread the cost over a large number. Realizing this fact, Continental engineers have made a very careful study of the mechanical operation of the Ponca City grease plant in an effort to make it modern and efficient in every respect.

Chemists and grease makers have, in the past few years, exerted considerable effort in making greases of any specification required by the lubrication engineer. The chemistry of grease making and the various formulas developed are very interesting and important subjects, but will not be considered in this paper. The preparation, packaging and transportation of the large number of various greases are equally interesting and important in the over-all study of grease manufacturing. The grease chemist may be able to make a given grease at a unit price sufficiently low to realize an overall profit from sale at the market price, provided the unit cost is not greatly increased due to handling from grease kettle to the ultimate consumer.

Operating with a total of 10 men, including the foreman, on one 8-hour shift per day, the Ponca City grease plant of the Continental Oil Co. can produce, package and ship 12,000,000 pounds of grease per year. The plant is so designed that working two 8-hour shifts per day the plant capacity may be increased to 24,000,000 pounds per year. Continental prepares greases in the following seven different size containers: 1, 5, 10 and 25-pound cans, and 100, 220 and 400-pound drums.

Continental Oil Co.'s grease plant is housed in a three-story fireproof building of approximately 37,600 square feet total floor space—the first floor providing 12,320 square feet of the total. The three-story building, with a full basement, houses all the grease manufacturing equipment, empty containers, grease stocks, working stocks of grease ingredients and working tanks. Twenty tanks ranging in size from 12,000 gallons to 21,000 gallons are adjacent to the grease plant and are used for stock storage of all fats, oils, etc., required in manufacturing Conoco greases. Tanks are equipped with steam heating coils for maintaining certain ingredients at temperatures above atmospheric to prevent solidification.

Pumps in Basement

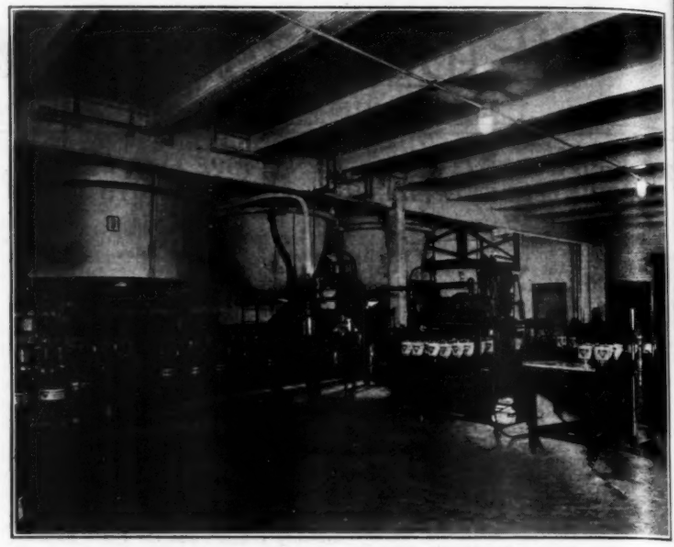
All pumps are located in the basement of the grease building and are electric motor driven with remote control from either the second or third floors of the building. Grease plant housing is built to utilize gravity as much as possible.

One end of the third floor of the Conoco grease plant is used for cardboard cartons, which are stored in the knocked down condition and delivered to the first floor as needed by elevator. An accurate scale for weighing all fat and fatty acid is located on the third floor. A large rectangular tank (for liquid, fats and oil) mounted on a truck operates in connection with the scale. The tank is run on to the scale and filled from storage with overhead feed lines to the proper weight; then run to the soap kettle and discharged through a valve in the bottom. The soap kettle is equipped with a swing pipe connection at the bottom for discharging into any one of three finishing kettles opening on the second floor. The soap kettle is equipped with 40-pound air and plant steam connections for quick discharge of its contents in case of emergency. Temperature and jacket pressure control may be exercised from the second floor. By this means large quantities of fats, fatty acid and other solid ingredients, such as lime, are accurately measured and handled with but little labor. Two axle grease kettles open on the third floor and discharge finished axle grease on the second floor through a proportioning pump and thence to an automatic filling machine.

Types of Kettles

All the other kettles open on the second floor and discharge on the first floor. There are six latest type Dopp kettles all equipped with double motion bridge type agitator and adjustable spring steel scraper blades which sweep the entire inner surface of the kettle. The description of these kettles follows:

1	1,700-gal.	Jacketed	Steam heated
2	1,000-gal.	Jacketed	Steam heated
2	1,000-gal.	Single shell	Direct fire heated
1	200-gal.	Single shell	Direct fire heated



Automatic filling machine, drum conveyor and device for placing lids on the cans.

* * * * * * * * *

These are in addition to the three axle grease and gear compound kettles and the 300-gallon soap kettle. Nine 850-gallon measuring tanks equipped with gauge glasses calibrated in gallons are also located on the second floor. These tanks act as measuring tanks between storage and the various grease kettles to which they discharge by gravity through a complete manifold.

All finishing kettles are driven by individual electric motors through direct connected speed reducers and double silent chain from individual jack shafts. Motors and speed reducers are mounted on a mezzanine framework directly behind the kettles on the first floor, the silent chain from the jack shafts passing through a series of slots in the second floor to the agitator drive shafts. The two fire kettles are equipped with General Electric multiple speed motors allowing four speeds ahead and four in reverse for flexibility in operation required by the widely different consistencies of the products manufactured in this equipment. All other kettles are driven by single speed, nonreversible motors. Starting and stopping are accomplished by suitable remote controls located close to the manufacturing control panel on the second floor.

Each kettle on the second floor is equipped with a vapor hood which feeds into a common vapor header. When any one kettle is not in use the hood is closed off from the vapor header by a close-fitting damper. An electrical motor driven suction fan pulls the vapors and fumes from the kettles, thus keeping a fume-free atmosphere in the grease plant at all times. The main vapor header discharges through a baffled fume separator, which separates any oil particles from the vapor and drops them into a container. The oil-free vapor is then discharged through a stack above the grease plant.

The remainder of the second floor is utilized for storing empty small grease containers which are dropped to the first floor by an electric elevator as needed.

Compounding control is largely accomplished from the second floor; however, practically all processes start on the third floor with the supply of some of the first raw ingredients used. Filling, transporting and loading control are almost completely exercised from the first floor. The manufacturing control board is located on the second floor with remote control devices for equipment in the basement and on the third floor.

One six-point electric pyrometer indicates kettle temperature of the five kettles and another six-point electric pyrometer indicates the furnace and flue temperature on the two gas-fired kettles. Another point on the pyrometer indicates the temperature of the gases going to the venturi stack fan from the gas-fired furnaces, which will be described later. Continued operation of the stack fan is indicated by light on the instrument board. Also located on the instrument panel are indicating pressure gauges showing the steam pressure on jackets of all steam-heated kettles and a similar gauge showing gas pressure on the plant main gas line.

Gas-Fired Kettles

Gas firing of kettles is controlled in a rather unique and highly satisfactory manner. Gas firing is by pressure control on the gas feed to the burners and is registered by manometers installed on the instrument board, one for each set of two burners on each kettle. Gas is taken from the refinery gas main line and delivered to the kettle burners through an automatic gas pressure regulator. The pressure on the main line averages about 9 pounds per square inch and the burner pressure three-fourths pound per square inch. With a constant gas pressure on the burners, constant kettle furnace tem-

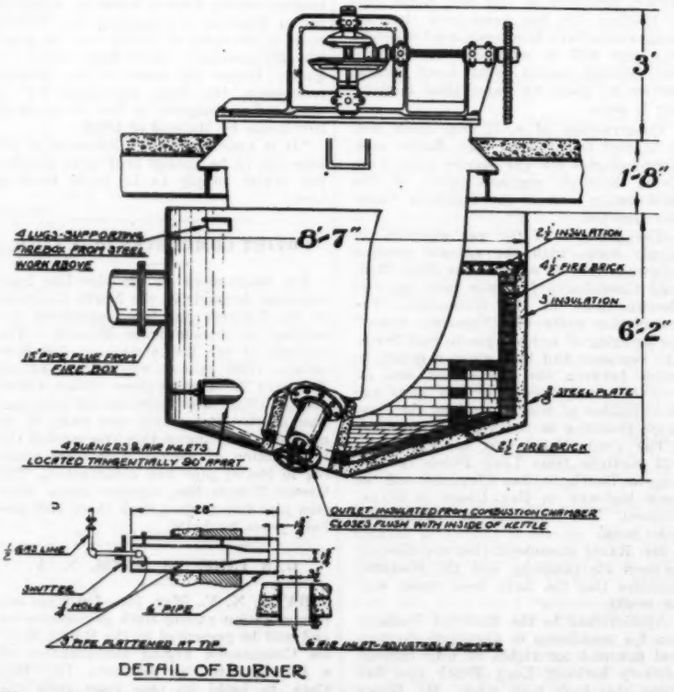


Figure 1—Detail of burner and direct fired grease kettle used for making cooked greases.

*Assistant to manufacturing manager.
†Foreman, grease plant.

perature is easily maintained. Combustion gases are drawn from the gas-fired furnace with a fan for induced draft in a venturi type stack. Combustion gases going to the stack are held at a temperature below 600° F. by cold air injection. Continued operation of the stack fan is of such importance to the operation of the gas-fired furnaces that the red light indicator described above was placed on the instrument board.

Figure 1 shows the installation of a Dopp direct fired open top kettle as designed by Continental engineers. Molded Dopp iron kettles have a number of advantages over fabricated steel kettles. They are less subject to burning than steel kettles, and the kettle walls are smooth, permitting the use of a scraping agitator which shortens the time required for the contents to reach a given temperature. Scraping also helps to prevent local overheating and burning of material that would stick to the kettle wall without such scraping.

Figure 2 shows typical data from making a batch of 5,000 pounds of soda grease containing approximately 33 per cent of soap. The low furnace temperatures shown in the table are obtained by using a large excess of air with the gas, the average CO_2 content being 3.6 per cent. While this method is inefficient from a thermal standpoint, the inefficiency is not serious as a very small amount of gas is consumed (total 4,800 cubic feet for the batch), the heat value of which is 1,250 B.t.u. per cubic foot. In preparing the soda soap grease for which the data sheet is given, the fat was melted first, then a solution of caustic added (in this particular case half the oil is added also at this stage), and the agitator started. After a few minutes of preliminary mixing the heat is increased. Soon after starting the batch it becomes too stiff for the agitator to be run continuously, so during this period the agitator is used only for short intervals whenever the mass softens enough to make it possible. After the required temperature is reached and dehydration is complete, the fire is turned off, the balance of the oil is added and worked in, and the finished grease drawn off.

FIGURE 2—TYPICAL DATA FROM THE MAKING OF A BATCH OF 5,000 POUNDS OF SODA GREASE, CONTAINING APPROXIMATELY 33 PER CENT SOAP, IN A DOPP DIRECT-FIRED SINGLE SHELL MIXER

	Temperatures, °F.				Agitator, r.p.m.			
Time	Grease	Bottom of furnace	Upper part of furnace	At fan suction	Sweep	Paddles	Ttl. power as kw.	Gas cu. ft.
6:30 a.m.	...	...	...	...	12	20	...	...
7:06	...	115	...	...	12	20	1.1	...
7:30	125	155	560	85	12	20	1.5	310
8:00	165	190	640	90	Down	Down	0.9	310
8:30	180	250	735	100	Down	Down	0.4	440
9:00	200	280	750	110	Down	Down	0.3	370
9:30	220	325	775	120	Down	Down	0.1	360
10:00	225	350	790	130	12	20	1.2	365
10:30	235	370	800	135	12	20	3.0	360
11:00	240	365	785	135	12	20	2.8	315
11:30	300	400	830	145	12	20	1.9	395
12:00	335	425	840	150	12	20	1.3	375
12:30 p.m.	355	435	830	150	12	20	0.7	360
1:00	360	450	830	150	6	10	0.6	340
1:30	365	450	835	150	6	10	0.7	340
1:45	380	450	835	150	12	20	0.3	*170
2:30	345	315	400	120	12	20	1.5	...
3:00	340	285	330	110	12	20	0.9	...
3:30	340	270	300	110	6	10	1.0	...
4:00	335	260	270	105	12	20	0.9	...
4:30	330	250	255	100	12	20	0.9	...
Total							22.0	4,800

*Cut fire.

Control Floor

On the second floor near the control instrument board is the laboratory test table for chemical control. Only routine tests required by the grease maker during manufacture are made at this table. The testing of finished products and all grease research are conducted in the main plant laboratory, the research laboratory, or in the semicommercial grease plant. The small chemical test table near the grease kettles has proved highly satisfactory for control and gives the grease maker current control data without wasting the time required to send a sample to the main laboratory for test.

On the third floor of the grease plant there is a complete semicommercial grease plant. New greases developed in the research laboratory are made in the semicommercial plant to obtain plant operating data and to provide sufficiently large quantities for testing the particular grease in its intended duty. The semicommercial plant is equipped with a 30-gallon capacity gas-fired open type kettle, 15-gallon soap kettle, and a 50-gallon steam heated finishing kettle. The kettles are all equipped with the same type scraper and agitator equipment as the large kettles. The equipment is operated by an electric motor driven shaft of its own, and is a duplicate of the large plant equipment in every possible respect.

Greases finished in the kettles which open on the second floor are discharged for canning and packaging on the first floor. Each kettle discharge line is equipped with a monel metal screen through which all grease must pass in going to the cans. These screens range from 60 to 100 mesh, depending upon the type of grease being discharged. Utmost care is exercised by previous screening to insure clean raw materials and ingredients, but the final screening removes any lump materials which may result from manufacturing. These screens are cleaned at regular intervals and obviate the inclusion of any lumps in the finished grease.

Portable Filler

A portable, automatic, small can-filling machine may be attached to any of the kettles for emptying, and when not in use may be rolled to the side out of the way. This machine automatically fills four cans to accurate weight at one time. The cans are capped by a specially designed can capper and transported to the packaging or casing machine by floor trucks. The sealed carton emerging from the packaging machine is picked up by an overhead belt conveyor which delivers the finished carton to storage at one end of the first floor or direct to the boxcar alongside the railroad loading dock. The overhead conveyor has three laterals for delivering the cases at any of three locations.

Portable automatic drum filling equipment may be rolled in front of the grease kettles for filling drums, and when idle may be rolled out of the working space to idle storage space. Roller type conveying equipment is installed just at the rear of the kettles, on which the accurately filled drums are placed after capping. The conveyor carries the full drum from the end of the building to a point near the center, at which point the conveyor drops the full drum to the basement by a conveyor spiral for distribution and storage. The basement is used for storage of empty and full drums.

Large can portable automatic filling equipment may be rolled in front of the grease kettles also. This operation is similar to that of the drum equipment. Continental engineers have developed a rather unique device for placing the lids on grease cans. The base is a revolving belt conveyor, which carries the containers under a flexible springed adjustable head belt conveyor, lower at the discharge end than it is at the feed end. The container is placed on the base and the lid dropped on the container, and as the belt conveys the container through the device the lid is pressed into place by the spring pressure on the head and by the decreasing height. The entire head is adjustable up or down to allow of handling the various size containers of different heights. After the lid is securely installed, the container may be placed on conveying equipment or floor trucks for transportation to storage or car.

The seven spot railroad car loading dock is fully equipped with lighting facilities for night loading. Two automatic truck loading docks are provided. Near the center of the first floor is the grease plant foreman's glass enclosed office. Practically the entire operations of filling, packaging, storing and delivery to cars may be observed by the foreman from his office desk. The entire plant is designed for flexibility and economy of operation.

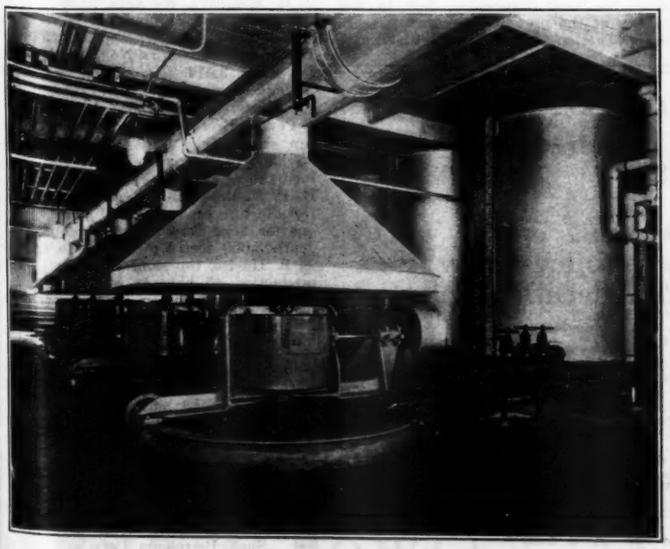
SOVIET IS NO LONGER HIRING U. S. WORKERS

NEW YORK, Mar. 21.—American oil field and refinery workers who have been contemplating transferring their activities to Russia will be interested in an announcement by Amtorg Trading Co., American commercial representatives of the U.S.S.R., that it is no longer hiring workers to go abroad.

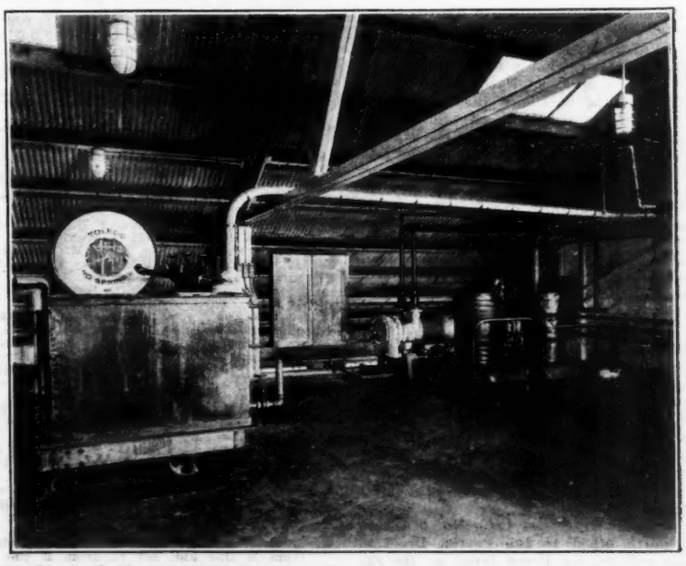
The Amtorg announcement states: "Despite previous announcements to the effect that at present American mechanics are not being engaged for work in the Soviet Union, thousands of applications continue to pour into the Amtorg office. The cessation for the time being of the hiring in this country of skilled workers for Soviet industries is due to the temporary shortage of living quarters, which makes it impossible to accommodate any large influx of foreign workers.

"It is expected that with the creation of additional housing facilities there will again be a call for American mechanics and engineers for employment in Soviet industries."

In connection with employment in Russia it is interesting to note that the Soviet some time ago revised its compensation policies and is now paying foreign and Russian workers alike entirely in Soviet currency.



General view of finishing kettles showing the vapor hood, vapor header, and in the background are the measuring tanks.



View of scale and weighing tank. The pumps located in the basement are started and stopped with the button control. The weighed quantity of oil or other material then goes to the kettle for mixing.

Lathrop Area Extended Mile to North

Joiner Field Also Extended 2,000 Feet to Southeast. Now 4,532 Completions in East Texas, With 89 New Locations During Week

By L. E. Bredberg

DALLAS, Tex., Mar. 21. — Two wells were completed in separate parts of the East Texas district this week, extending production a mile farther to the north in the Lathrop area, and 2,000 feet on the southeastern corner of the Joiner, Rusk County.

Eslick and others' No. 1 Whitehurst in the McKinney and Williams Survey, just over the Gregg County line into Upshur County, and 1 mile north of the nearest producer of the Lathrop area, Becker's No. 1 Barrett, was drilled in on March 20, an accurate gauge not being obtained. Estimates made by field men reported it good for about 10,000 bbls. per day. Total depth of the hole has been corrected to 3,628 feet, with surface elevation 342 feet, making bottom of hole standing at subsea datum of minus 3,286 feet instead of minus 3,360 feet as heretofore reported.

Completing this well for a producer adds several hundred acres to the north end of the field and extends the field in the direction of Cranfill & Reynolds' No. 1 Rash in the Eubanks Survey, 3 miles to the northwest, a small producer which is producing considerable water and a lower gravity oil than found in the main body of the field, the production coming from below the water level, and at a much greater depth than found in wells 4 miles to the south. These variations caused many conjectures by geologists and operators in the field when the well was first brought in, but the majority of those who have been in doubt about the well and its possibility of opening up a separate pool have conceded that there was rapid dipping to the north on this end of the field, being responsible for the difference in depth of the pay horizon with that found to the south.

The Cranfill & Reynolds' producer marks the extreme northern limit of the field. Several tests have been drilled to the north and northeast of it, in Upshur County, but all have failed to pick up saturated Woodbine sand. There are several other wildcats drilling in the area, two of them east of the outpost producer, and are being closely watched for developments. J. C. McFarland and others, now drilling on the Willie Star 96-acre farm in the C. H. Cooper Survey, approximately 1 mile east of the Cranfill & Reynolds producer, is perhaps the most interesting of the three drilling in the vicinity of the outpost well. Wadley and Evans are drilling one 3 miles to the north on the Oliver farm in the S. Sanders Survey, which will soon give an idea as to the possibilities farther north of the Cranfill & Reynolds wells, as it is drilling below 3,000 feet.

Joiner Extension

On the southwest corner of the field, Stanolind Oil & Gas Co.'s No. 1 Siler in the Thomas White Survey extended production approximately 2,000 feet to the east in the southern part of the Joiner Field southern Rusk County, when it was completed at a total depth of 3,612 feet at a rate of 180 bbls. per hour, based on a flow test through 2½-inch tubing. It topped the sand at 3,557 feet.

Sinclair Oil & Gas Co.'s No. 1 Ashby, a north offset to the Peyton Brothers gas well on the Perry farm, on the extreme southern end of the Joiner area, Rusk County, set pipe at 3,660 feet and is drilling plug. It is expected to be another dry gasser for the area, the third to be completed. The Perry well was completed for a 50,000,000-foot dry gas well, the first completed in the field.

J. Earl Brown, Fort Worth geologist, is to drill an interesting test on the southern end of the field, approximately 1 mile south of the Perry gasser, and therefore considered in gas territory. It will be located on the J. G. Arnold farm on a lease recently acquired from the Pure Oil Co. Location is 990 feet from the east and 330 feet from the south line of the Arnold 128-acre farm in the William Christian Survey. This test will be exceptionally interesting due to the possibilities of extending production still farther south, or proving the southern limits of the East Texas Field.

At 7 a.m. March 16 the per well allowable of the field was given another cut, a minor one, however, curtailing the daily output from 75 to 72 bbls. per well in order to maintain the field at 325,000 bbls. or less per day. This is the seventh reduction in the field since September 5.

Now 4,532 Completions

There are 4,532 completed wells in the district at 7 a.m. March 19, 4,327 of these reporting 306,396 bbls. production, showing how daily production is kept below the maximum in the field. This gives a per well average of 70.8 bbls. for the 24-hour period of that date. Forty-one wells reported no production, due to physical reasons, or to being shut in by the authorities on account of violation of proration orders.

During the week ending March 16, an average of 11,136 bbls. daily went to storage in East Texas, distribution having increased over 20,000 bbls. per day more than the previous week. However, there is still less than 2,000,000 bbls. in storage in the district, and around 7,000,000 bbls. empty storage. Production for the field for the week was 329,334 bbls., compared with 323,612 bbls. the preceding seven days. Distribution totaled 318,198 bbls. for this period, while the previous week's runs averaged 298,750 bbls. per day.

Locations and Completions

Locations and completions showed an increase the past week. There were 89 locations and 92 completions. North Gregg County continues to lead in activity with 36 locations reported; 12 were reported for south Gregg, 13 in north Rusk County, and 14 in the southern part of the county. Smith County had seven and five were staked in Upshur County. Two wildcat locations were reported, one in Cherokee County and one in Morris County.

Indictments have been returned against seven East Texas operators in Gregg County, alleging theft of oil in the Gladewater area of that county. Warrants were immediately issued. Since filing of charges, landowners have started an organized investigation of similar accusations. The latest report on by-passing oil, or running oil without knowledge of land or royalty owners, came from the southern end of the field, Rusk County. An investigation is now being made.

Another east side test was abandoned in the Lathrop area, Gregg County, this week. This test was drilled by Otto Morris and others on the Harris farm in the John Ruddle Survey, and was abandoned at a total depth of 3,531 feet, another marker for this side of the field in Gregg County.

Everett Drilling Co.'s No. 1 Knights of Tabor in the H. Hobson Survey, on the eastern edge of the Joiner area, Rusk County, appears as a small well, and will probably be shot to increase production. It tested 250 bbls. per day at 3,742 feet, was drilled to 3,766 feet, and is now testing. It may possibly be abandoned unless a shot makes a sufficient producer out of it to put it on pump if it fails to flow.

Van Field—Van Zandt County

The Pure Oil Co. abandoned its No. 2 Russell in the David Rhodes Survey at a total depth of 2,993 feet this week. This test is in the extreme southwestern corner of the Van Field, and marks a definite limit to the field in that direction. It is approximately one-half mile from the nearest producer, and outside of the Van unit.

On application of operators in the field, hearing of the Railroad Commission on proration and conservation rules for the Van Field has been postponed from March 30 to April 5. Old rules, now set to expire March 31, will remain in effect until new orders are adopted pursuant to the hearing.

Falls County

Bateman and others' second test on the Czajkowski farm in the Robert Moffit Survey, near the company's first dry test, topped the Austin chalk at 3,380 feet and is drilling in chalk. It is perhaps the most interesting test in the county at the present time, and is seeking production in the Edwards lime.

EAST AND EAST CENTRAL TEXAS WILDCATS

Week Ending March 21

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
C. R. Wilmuth et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in 8½ of 129-ac. tract, M. Main Sur.	T. D. 1,538 ft.

ANGELINA COUNTY

Helburt et al's No. 1 Long Bell Lumber Co., 160 ft. from S line and 200 ft. from E line of Sec. 9, H.&T.B. Sur.	Location.

BOWIE COUNTY

Burnham-Robertson and Greer's No. 1 F. O. Weiss, 850 ft. from N line and 200 ft. from W line of B. H. Williams 50-ac. tract, Jessie Dean Sur.	Moving in rig.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, H. Kimble Sur.	S.D. 1,000 ft.
V. Clopton & Hawkins' No. 1 A. P. Pace, 288 ft. from N line and 330 ft. from most northerly E line of 40-ac. lease, W. Dikes Sur.	Drlg. 200 ft.
Denman et al's No. 1 Mrs. Renfro, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Derrick.
Harper and Perkinson's No. 1 J. T. Lowery, 650 ft. from N line, 150 ft. from W line of Blk. No. 5 on a 139.6-ac. tract, 4 miles W of Troupe, C. B. Jennings Sur.	S.D. 1,200 ft.
Merry Bros. and Perini's No. 1 Annie Kelley, 330 ft. from N line and 443 ft. from E line of 393-ac. tract and 90-ac. lease, M. De Los Santos Coy Sur.	Drlg. 3,035 ft.
Wilson & Stubbs' No. 1 L. Robert, 450 ft. from S and 150 ft. from W line of lease, J. B. Wolfin Sur.	S.D. 2,035 ft.

(Continued on Page 72)

COMPLETIONS IN EAST TEXAS

Bowie County

Langford and others' No. 1 Whybark, dry and abandoned, total depth 2,503 feet.

Gregg County

Amerada Petroleum Corp.'s No. 2 Continental, top sand 3,595 feet, initial production 35 bbls. in one-quarter hour through 1-inch tubing choke, total depth 3,629 feet. Atlantic Oil Producing Co.'s No. 2 A. V. Bacle, top sand 3,663 feet, initial production 150 bbls. per hour through open tubing, total depth 3,685 feet; No. 4 Tuttle, top sand 3,536 feet, initial production 60 bbls. per hour through tapered tubing, total depth 3,600 feet. Barnsdall Oil Co.'s No. 6 Adams, top sand 3,590 feet, initial production 139 bbls. per hour through 1-inch tubing choke, total depth 3,680 feet. Cal-Pet Corp.'s No. 2 Johnson, top sand 3,568 feet, initial production 29 bbls. in one-quarter hour through 1-inch tubing choke, total depth 3,595 feet. Canadian Production Co.'s No. 2 J. A. Whittaker, top sand 3,504 feet, initial production 43 bbls. in 20 minutes through 1-inch tubing choke, total depth 3,527 feet. Deep Rock Oil Co.'s No. 3 H. Pritchard, top sand 3,506 feet, initial production 223 bbls. per hour through open tubing, total depth 3,566 feet. East Texas Refining Co.'s No. 2 T. W. Tuttle, top sand 3,562 feet, initial production 88 bbls. per hour through 1-inch tubing choke, total depth 3,585 feet. Fain and McGaha's No. 4 Bauknight, top sand 3,541 feet, initial production 200 bbls. per hour through open tubing, total depth 3,579 feet. F. H. E. Oil Co.'s No. 7 B. Christian, top sand 3,639 feet, initial production 94 bbls. per hour through three-quarters-inch tubing choke, total depth 3,669 feet. Gulf Production Co.'s No. 6 Judge Estate, location abandoned; No. 7 Judge Estate, location abandoned.

Heyser and Heard's No. 4 Hindman, top sand 3,624 feet, initial production 75 bbls. per hour through three-quarters-inch tubing choke, total depth 3,689 feet. D. L. Hoffman's No. 1 B. F. Phillips, top sand 3,630 feet, initial production 150 bbls. per hour through open tubing, total depth 3,657 feet. Humble Oil & Refining Co.'s No. 5 Armstrong, top sand 3,591 feet, initial production 28 bbls. in 20 minutes through three-quarters-inch tubing choke, total depth 3,599 feet; No. 1 J. H. Sheppard, top sand 3,658 feet, initial production 75 bbls. per day through various chokes, total depth 3,671 feet. Lecker and Hubbard's No. 3 J. M. Tuttle, top sand 3,514 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,542 feet.

Peyton Brothers' No. 2 J. M. Christian, top sand 3,561 feet, initial production 35 bbls. in one-quarter hour through 1-inch tubing choke, total depth 3,596 feet. B. F. Phillips' No. 3 fee, top sand 3,572 feet, initial production 59 bbls. in one-quarter hour through open tubing, total depth 3,600 feet. Pilot Oil Co.'s No. 3 T. B. Harris, top sand 3,523 feet, initial production 45 bbls. in one-quarter hour through 1-inch tubing choke, total depth 3,541 feet. Red Star Oil Co.'s No. 4 M. Lemaire, top sand 3,588 feet, initial production 40 bbls. in 25 minutes through 1-inch tubing choke, total depth 3,616 feet. J. C. Reese and others' No. 1 Moody, top sand 3,618 feet, initial production 40 bbls. in one-quarter hour through 1-inch tubing choke, total depth 3,640 feet.

Selby Oil & Gas Co.'s No. 4 L. C. Ingram, top sand 3,521 feet, initial production 68 bbls. in 35 minutes through 1-inch tubing choke, total depth 3,561 feet. Shell Petroleum Corp.'s No. 1 O. Lockett, top sand 3,594 feet, initial pro-

(Continued on Page 88)

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Oklahomans Seek Crude Oil Markets

Soliciting Distant Refiners and It Is Said Some Favorable Responses Have Resulted. Changes in Production Rules

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Production of Oklahoma oil fields shows an increase for the week ending March 19, of approximately 1,500 bbls. a day, with a daily average of approximately 420,500 bbls. Part of the increase came from the Greater Seminole area, while the Oklahoma City Field averaged 91,400 bbls. a day. The Fish Pool, in the eastern part of Seminole County in the Greater Seminole district is becoming an important producing area, and as yet is undefined.

A general revision of the production rules and regulations as they apply to the Oklahoma City Field has been recommended by R. M. Collins, state umpire and a committee of five selected by him about a month ago. Producers have been sent copies of the suggestions.

Production Recommendations

The approved recommendations will be sent to the Oklahoma Corporation Commission prior to the meeting on March 28, and may become effective at the beginning of the next proration period, April 1.

Producing wells in the Oklahoma City Field are put into four classes, (a) lime wells, with the allowable remaining the same as it is now; (b) "water wells" (those making 3 per cent or more of water), with the allowable placed at 1.25 bbls. per 1,000 bbls. of the net market outlet, with no other allowance; (c) minimum wells, being those outside of the lime zone and not classified as water wells, with an allowable, to be a half barrel per 1,000 bbls. of the net field outlet with no other allowance, and (d) potential wells, those not otherwise classed and whose allowable will be based on percentages as fixed by the Corporation Commission. These latter wells will be required to take potentials periodically the next period being June 1.

Umpire's Authority

The umpire would be given authority to pass on or fix the classification of the wells, not specificially defined in the order of the commission, or to make changes when required.

It is also recommended that potential tests on wells be made each six months, under the rules fixed by the commission. Intermittent potentials would be permitted upon application to the umpire.

It is recommended that current underproduction be given preference in allocating shipments from the field. The committee approved the 10,000-foot gas-oil ratio and shifting of allowable from high gas-oil wells to low ratio wells.

Change in Shutdown Time

Change in the method of shutdown time for wells in order to even the proration period, would be to permit operators to erect a derrick, complete the cellar, and then wait 58 days before moving in tools. Notice of such intention would be given the umpire. This method eliminates the 58-day period of shutdown after the well has been drilled into the pay sand and tested.

Permit would be required from the umpire to recondition a well and daily reports would be required on the quantity of production of each day during this process and operation.

The eighth recommendation is that purchasers of natural gas from oil wells in the Oklahoma City Field, be required on notice by the umpire to furnish a daily report on the volume of gas metered from properties.

Members of the committee include E. F. Guidinger, Phillips Petroleum Co.; A. V. Hoenig, Indian Territory Illuminating Oil Co.; J. R. McWilliams, Skelly Oil Co.; W. U. Paul, Acme Oil & Gas Co.; and Ralph Roark, Shell Petroleum Corp.

Proration Changes

At a meeting of the statewide proration committee held in Tulsa, Saturday, March 19, it was recommended that proration restrictions be lifted in all fields, excepting Oklahoma City and Greater Seminole areas. These recommendations were suggested by State Umpire Ray M. Collins, and will be presented to the Corporation Commission during the week.

It was recommended that the allowable of the Fish Pool be increased to 3,500 bbls. in lieu of 1,500 bbls. for the month of April and that the Wewoka Townsite be reduced from 5,600 bbls. to 4,000 bbls. daily. It was suggested that all wells in the State making less than 20 bbls. a day be allowed to produce to capacity and all wells making more than 20 bbls. be prorated to 50 per cent for all the output in excess of the 20 bbls.

It was recommended that the Greater Seminole fields remain as prorated, the present proration to stand, it being 44 per cent of the estimated potential during the month of April.

Stripper wells in the northeastern part of the State had the 10 per cent proration lifted March 8. This new petition will ask the commission to remove all proration from wells in Tulsa, Okmulgee, Osage, Creek and the other old areas in the State in the stripper class.

Cannot Make Allowable

According to a survey made in the Oklahoma City Field it was found that several wells are unable to make their allowable production. These wells are scattered in various parts of the field indicating the pressure is declining, and that it will be necessary to install pumping or air-gas lift plants to secure the production.

Oklahoma Pipe Line Co.'s new booster station on its pipe line system between Oklahoma City and Drumright, is expected to be completed by April 1, when the capacity of the line will be increased to 27,000 bbls. daily. The booster unit is located near Wellston, Lincoln County. It is also expected the company will increase its nominations in the Oklahoma City Field when the line is completed.

Work was started on three new locations in the southwest part of the Oklahoma City Field during the week: Phillips Petroleum Co.'s No. 1 Haddox, SE cor. SW SE, Section 15-11-3w, No. 1 Gates, NW cor. NE SW NE, Section 22-11-3w, and the Grison Oil Co.'s No. 1 Little, NE cor. NE SW, Section 22-11-3w.

Adjusted Potentials

Adjusted new potentials were given the following wells in the Oklahoma City Field during the week:

Company and well—	Potential (bbls. per day)
Denver P. & R., No. 1 Harrison ..	14,523
Phillips, No. 1 Dehn	29,724
Phillips, No. 2 Ashcan	16,828
Phillips, No. 2 Efermier	1,266
Continental, No. 1 Canning	8,591
Continental, No. 1 Black	10,218
Continental, No. 1 St. Louis	12,531
Continental, No. 1 Metcalf	5,982
Continental, No. 1 Shields	5,018
I. T. I. O., No. 1 Little	8,446
I. T. I. O., No. 1 So. Glendale	9,819
Slick et al, No. 1 Classen	6,581
Slick et al, No. 1 Houston	379
Slick et al, No. 7 Classen-Edwards	7,347
Slick et al, No. 2 Long	6,515
Ocate, No. 3 Smith	8,406

Seeking New Outlets

An effort is being made by several producers in the Oklahoma City Field to find a greater outlet for crude oil.

Inquiries have been sent to northern and eastern refining centers attempting to find new markets for Oklahoma crude. It is believed that no attempt will be made to favor the Oklahoma City Field over the Greater Seminole area, for it is felt that should operators in either district get the benefit of an increased outlet, the general situation would be reflected in both areas.

Paul A. Walker, chairman of State Corporation Commission, has assured producers that if they find an increased market demand, the allowable of the Oklahoma City Field will immediately be increased. He also said that the commission will not favor producers who can sell additional or handle their own crude oil and not take it ratably from the field.

It is not known at this time whether any new crude oil contracts have been made, but it is said that some major purchasers have advised that their demands show signs of increasing and that something may be expected within the next 30 to 60 days.

Making New Connections

The development of the Oklahoma City Field is beginning to show signs of a slight increase, but those operators with offset locations to drill are still hesitating in view of the restricted market demand.

The Shell Pipe Line Co. is making connections to three new wells in the Oklahoma City Field, the Tom Slick Oil Co.'s No. 1 Dodd in Section 22-11-3w, the Phillips Petroleum Co.'s No. 1 Cowell in Section 22-11-3w, and the Harrell-Davis' No. 1 Fish, in Section 22-11-3w. These wells were completed last week. Operators in the southwest part of the field do not have trouble getting connections. Continental Oil Co. and Kessler Oil Co.'s No. 1 Canning is connected to the Oklahoma Pipe Line Co. Indian Territory Illuminating Oil Co.'s No. 1 Little and No. 1 Glendale are connected to the Empire Oil & Refining Co.

New Wells at Oklahoma City

New producers completed in the Oklahoma City Field included Ocate Oil Co.'s No. 2 Smith, SE cor. NE NW, Section 15-11-3w, which flowed 2,734 bbls. of oil in two hours from the Wilcox sand at 6,403-6,517 feet. This is the second hole on the location as the first was lost on account of fishing job at approximately 5,460 feet. Same company's No. 3 Smith completed its four-hour potential gauge making 4,792 bbls. of oil through a 4½-inch choke.

Harrell-Davis' No. 1 Fish, NE cor. SE SE, Section 22-11-3w, in the southwest part of the Oklahoma City Field, flowed 643 bbls. of oil in two hours with gas at the rate of 115,000,000 feet a day. On its initial four-hour gauge the well flowed 1,550 bbls. of oil and 158,000,000 feet of gas a day.

Hall & Briscoe and others' No. 1 on Block 18 of Central Addition, in SW cor. SW SW SE, Section 3-11-3w, the total depth 6,405 feet and with the 9-inch casing landed at 6,283 feet was bailed down and flowed 920 bbls. of oil in the first 15 minutes with gas at the rate of 30,000,000 feet a day. It was shut in.

Fish Pool Activity

The Fish Pool, along the boundary lines of Seminole and Hughes Counties, is the most active area in the Greater Seminole district.

The allowable production is held at 1,500 bbls. a day although on a 12-hour gauge its 15 wells were given a potential of 22,000 bbls. a day. The allowable of the pool is soon to be increased on the basis of 9 to 10 per cent, with each new well reducing the percentage of the amount of proration.

The producing horizon is called the Wapanucka lime, while actually it is more like a sand than a lime. Originally

(Continued on Page 68)

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	S.D. 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	S.D. 5,502 ft.

BECKHAM COUNTY

Pattel Royalty's No. 1 Goose Tree, SW SE SW SE Sec. 32-10-23w	Rig.
Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	T.D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cmt. to set 420 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-22-22w	S.D. 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 24-10-24w	S.D. 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	S.D. 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	S.D. 1,115 ft.

CHEROKEE COUNTY

La Piere et al's No. 1 Woods, C SE SE Sec. 27-17-21	S.D. 1,504 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McGraw, NE NW Sec. 2-1s-8	S.D. 1,450 ft.
Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Show wtr. 1,155-60 ft.; S.D.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	S.D. 1,450 ft.

CREEK COUNTY

R. F. Moore et al's No. 1 Gilliam, NE cor. SW NW, Sec. 17-17-8	Drlg. 1,008 ft.

CUSTER COUNTY

Miley Pet. Co.'s No. 1 Caldwell, NE Sec. 12-14-14w	Location.
Schoonmaker et al's No. 1 Station, NW cor. 25-4-6w	Rig.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	S.D. 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	S.D. 4,830 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor. Sec. 1-7-22w	5,000,000 ft. gas 1,455-65 ft.; T.D. 1,760 ft.
French's No. 1 Murphy, SW NW Sec. 23-7-21w	S.D. 1,645 ft.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE Sec. 14-9-19	Abd. 650 ft.
Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	S.D. 2,000 ft.
Ault et al's No. 1 Hall, SE NW Sec. 25-19-9	S.D. 200 ft.

KAY COUNTY

Bluebaugh et al's No. 1 Indian, C NW NE Sec. 30-25-1	Drlg. 910 ft.

(Continued on Page 68)

Kansas Surveyed for Oil Reserves

Operators Believe the Central and Western Counties Are Underlain With Much Petroleum. Meeting Scheduled

By W. A. Spinney
Staff Correspondent, Kansas Fields

Conditions in Kansas remain unchanged from the previous week. The State's daily production shows little difference from the preceding week. The daily average for the week ending March 19 was approximately 99,400 bbls. compared to 99,415 bbls. the previous week. The crude oil production of the State has been averaging around 100,000 bbls. a day so far this year while a year ago it averaged 113,000 bbls. daily. Last year several flush areas were discovered which are being restricted owing to the lack of market demand and pipe line outlet. In spite of the large potential possibilities the operators have curtailed the daily production to meet the market demnds. Recently there has been some agitation to increase the State's daily allowable to give operators in these flush areas a chance to produce more crude.

Thurman Hill, member of the Kansas Public Service Commission has invited the chairman of the Oklahoma Corporation Commission and the Texas Railroad Commission to meet with him in Austin, Tex., March 25, to discuss oil conservation measures, and has received acceptances.

The chief question to be considered at the meeting is the amount of oil each state will be permitted to produce this year, to prevent the market from being flooded.

Kansas, Oklahoma and Texas are already parties to the tristate agreement limiting the production of oil in each state. Kansas is limited to 100,000 bbls., Oklahoma to 500,000 bbls., and Texas to 825,000 bbls. a day.

May Extend Valley Center

The producing area in the Valley Center Pool, in Sedgwick County, may be extended a mile to the west. Gypsy Oil Co. and Continental Oil Co.'s No. 1 Corr, SE cor. NW, Section 12-26-1w, has landed the 6-inch casing at a total depth of 3,314 feet, and is expected to drill into the pay horizon in a few days. The test appears to be promising and is logging favorably compared to other producers in the field. If the test makes a commercial well it will add considerable territory to the pool. To the south of the Corr well a half mile, the same companies are drilling another test, No. 1 Bishop at 1,500 feet.

In the State Line Pool, south of Caldwell, Gypsy Oil Co.'s No. 1 Williams, in Section 16-35-3w, Sumner County, found the Siliceous lime at 4,969 feet and was drilling in the lime at 5,026 feet with nothing showing. It was the discovery well in the field and is being drilled deeper after producing from the Wilcox sand at a total depth of 4,784 feet.

The area in the northwestern part of Harvey County and over the county line in Reno County, is being developed. It is located along the Santa Fe Railroad's main line between Newton and Hutchinson, and the nearest town to the development is Burrton.

Three wildcat wells have been completed in the area and two new locations were announced during the week. The producing wells appear to be three separate producing pools located on what is believed to be the Abilene arch.

Following the discovery well of the Shell Petroleum Corp. in Section 23-23-4w, and the development of the Study & Turner area, about 3 miles to the northwest, activity was quiet for several months. Interest was revived in the district when F. Hollow's No. 1 Church Acre, in Section 20-22-3w, was completed to the north, about three months ago.

The new tests starting in the vicinity include Fisher & Lauck's No. 1 Ratzlaff, NW cor. SW, Section 9-22-3w, located 2 miles northeast of the F. Hollow well, in Harvey County. Mid-Kansas Oil & Gas Co.'s No. 1 Duerkson, SE cor. NE, Section 19-22-3w, offsetting F. Hollow's well to the west, is a rig, moving in. A mile east of the discovery well of Shell Petroleum Corp., No. 1 Blake, the Olson Drilling Co. is moving in rig for No. 1 A. Regier, C SW NW, Section 24-23-4w.

Ellsworth Allowable Reduced

The daily allowable production in Ellsworth County was reduced during the week by the Kansas Public Service Commission from 15 per cent to 10 per cent of the potential, due to increased output, but with no increase in the pipe line nominations. The Stanolind Crude Oil Purchasing Co. which is purchasing crude oil in this territory expects to increase its nominations in April.

Magnolia Petroleum Co.'s No. 1 Bayer, SW cor. NW, Section 7-20-10w, Rice County, in the Isern Pool, was drilling at 3,265 feet, expecting to reach the pay horizon in a few days. It has been logging favorably with the other producing wells in the area.

Gypsy Oil Co.'s No. 1 Kaziesk, SE cor., Section 16-16-10w, Ellsworth County, is a rig moving in. The new location is in the Stoltenberg Pool.

Slick, Pryor & Lockhart and Darby Petroleum Corp.'s No. 1 G. Heiken, NE cor., Section 26-17-10w, is a rig complete. Work at this location will proceed as rapidly as the weather permits.

J. H. Schlegel and others' No. 1 in the C NW, Section 4-18 16w, Rush County, is a rig building.

It is reported another attempt may be made to drill a test well in the Roxbury district of northeastern McPherson County, where in the past three or four years two tests were drilled. Showings of oil were found in both and one of the tests promised to make a producer for a time.

Kansas Oil Potentialities

Kansas is believed to be looming higher each week as the scene of a large drilling campaign. The potentialities of the central western part of the State are increasing as new wells are being completed in the flush areas.

A recent survey by different operators in State and addressed to the Oil Advisory Committee indicates the vast possibilities of the many undeveloped districts of the central western areas. In the report it was also recommended that the State be given an increase in its allowable from 100,000 bbls. per day to 130,000 bbls. per day.

The survey pointed out that the State has been increasing its potential steadily. This has been by the addition of new pools and not by drilling of the known flush fields. The operators pointed to the 20 new pools in the central western part of the State, 15 of which are believed to have a gauged potential of 148,500 bbls. a day, with a possible productive area of 46,000 acres. These possible productive areas are located in nine counties. In three other counties there are six pools yet undefined and presenting considerable possibilities.

The fields showing the most development at this time are the Ritz-Canton-Decker Field, McPherson County, Eastborough Pool, Sedgwick County, and the Voshell Pool in McPherson County.

Some express the opinion that the State of Kansas could develop a much larger potential in six months' time and at a low cost to the different operating companies, because the pay horizons are relatively shallow. The prospective oil bearing rock in much of the prospective territory is Silicious lime and if history is followed it is believed that water comes into that horizon after at least a year or two. If these areas are kept under strict curtailment it will retard the water encroachment.

Review of New Pool

The report of the survey committee includes a list of the status of the recently discovered pools in the State.

The Ritz-Canton-Decker Field in McPherson, discovered in June, 1929, has 124 wells with a potential of 115,000 bbls. and 14,000 prospective acres. The Shell-Johnson area, discovered February, 1932, with one well making 400 bbls., and 1,400 prospective acres. The Burrton area, Reno County, discovered in September, 1931, with seven wells, 800 bbls. potential, and 6,000 acres estimated to be proved. The Hollow Pool in Harvey County has one well, potential of 500 bbls. and 2,000 acres estimated proven, discovered in December, 1931.

In Ellsworth County, the Stoltenberg Pool, discovered in June, 1931, now has three producing wells with a potential of 3,500 bbls. a day and an estimated 4,000 acres of prospective territory. The Stratman area with four producing wells and a potential of 6,500 bbls. a day and 2,500 acres was discovered April, 1931. The Heiken area with one well with a potential of 800 bbls. and 1,000 acres of prospective territory.

In Rice County, the Schurr Pool, with 12 producing wells with a potential of 11,997 bbls. and 640 acres prospective, was discovered in August, 1929. The Ploog-Beyers areas with two wells and a potential of 4,000 bbls. and 3,000 acres was discovered in July, 1930. The Sharpe area with one well and a potential of 250 bbls. a day has 2,500 prospective acres.

In Barton County, the Isern Pool, with two wells and a potential of 1,100 bbls. is estimated to have 640 acres of undeveloped acreage. Prairie-Davidson Pool, with one well with a potential of 200 bbls. and 640 acres of prospective territory, was discovered in March, 1930.

Russell County has four one-well pools with approximately 1,500 bbls. potential production and 1,500 proven acres. Ness County has one wildcat well and Edwards County has a one-well pool. Areas

(Continued on Page 65)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Morgan & Flynn's No. 1 Haas, NE SW, Sec. 30-18-15w	Location.
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	S.O. 3,225-28 ft.; 3,304-10 ft. wtr.; fishing 3,375 ft.
DICKINSON COUNTY	
Severe et al's No. 1 Lavengood, NE SW Sec. 13-13-2	S.D. 4,752 ft.
EDWARDS COUNTY	
Mid-Kansas O. & G. Co.'s No. 1 Converse, SW NE NE Sec. 30-24-18w	R.O.G.
ELSWORTH COUNTY	
R. Gear et al's No. 1 Sanberth, C SW SE Sec. 29-16-9w	S.D. 50 ft.
Alyward et al's No. 1 Stratman, SE NW SE, Sec. 1-17-10w	Siliceous 3,255-71 ft.; 117 bbls. 2 hrs shut in; estimated 2,000 bbls.; no pipe line connections.
Aladin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Siliceous lime 3,332-47 ft.; estimated 1,500 bbls. a day; shut in.
FINNEY COUNTY	
National Ref. Co.'s No. 1 Wells, C SW Sec. 13-23-30w	Drlg. 4,100 ft.
HARVEY COUNTY	
D. R Louck's No. 1 Regier, SW SE NW Sec. 9-22-3w	Location.
J. Liggett et al's No. 1 Vessell, NE SW, Sec. 3-23-3w	Location.
Liggett et al's No. 1 Davis, SW SE NE Sec. 7-24-1	S.D. 2,500 ft.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor. Sec. 30-27-10w	1,635-40 ft., 2,000,000 ft. gas; at 2,005-20 ft., 6,000,000 ft. gas; at 1,133-42 ft., 3,000,000 ft. gas; showing oil 3,385 ft.; T.D. 3,504 504 ft; completed, 260 bbls.
Panhandle Drlg. Co.'s No. 1 Wetheral, C SE NW SW Sec. 20-28-10w	S.D. 890 ft.
McPHERSON COUNTY	
Detrich et al's No. 1 Sinclair, SE SW, Sec. 25-19-1w	R.O.G.
Twin Drlg. Co.'s No. 1 Farver, SW SE Sec. 16-20-1w	Simpson 3,486-95 ft.; water, abd.
Shell Pet. Corp.'s No. 1 Johnson, SE SW SW Sec. 35-19-3w	Top chat 2,984-3,007 ft.; 13,500,000 ft. gas and 600 bbls. oil; shut in.
MORTON COUNTY	
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w	T.D. 3,640 ft.; temp. abnd.
MORRIS COUNTY	
Kostle-Moseley & Hatfield's No. 1 Furney, NE SE Section 16-16-8	Spud; S.D.
Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7	Fishing 915 ft.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9	S.D. 2,625 ft.
NORTON COUNTY	
Richards et al's No. 1 Colby, Sec. 17-4-21w	Rig.
OSAGE COUNTY	
Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15	S.O. 2,190-2,200 ft.; S.D.
PRATT COUNTY	
Ninnescah O. & G. Co.'s No. 1 Hardesty, SW SE SE, Sec. 28-27-11w	Rig on ground.
RAWLINS COUNTY	
J. G. Durham et al's No. 1 Weaver, SE cor. Sec. 3-2-35w	S.D. 3,925 ft.
RENO COUNTY	
Jarvis & Wright's No. 1 Rainbow, NW SE Sec. 33-22-7w	Rig.
RICE COUNTY	
J. Liggett et al's No. 1 Thodel, C NW NW, Sec. 11-21-7w	S.D. 50 ft.
Gypsy Oil Co.'s No. 1 Steckel, C NE NW, Sec. 31-19-10w	Set 3,299-3,324 ft; S.O.
RUSSELL COUNTY	
J. Brennan's No. 1 Waly, CNL E½ NW Sec. 29-13-11w	Rig.
T. Palmer et al's No. 1 Pasek, C SE Sec. 3-14-11w	Sil. 3,385-3,427 ft.; underreaming.
RUSH COUNTY	
Skelton et al's No. 1 Brock-Hartman, SW SE NE Sec. 4-18-16w	S.D. 50 ft.
SALINE COUNTY	
Twin Mounds Oil Co.'s No. 1 Weis, C W½ NE NW Sec. 20-13-4w	S.D. 2,710 ft.
SHERIDAN COUNTY	
Flo et al's No. 1 Shoemaker, SE SW Sec. 27-7-26w	Drlg. 4,180 ft.
STEVENS COUNTY	
Argus Prod.'s No. 2 Christopher, C NE Sec. 10-33-39w	S.D. 5,521 ft.
SUMNER COUNTY	
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW Sec. 6-34-2	Drlg. by csg. 2,285 ft.
WASHINGTON COUNTY	
Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3	S.D. 1,720 ft.

Two Good Gas Wells in Jackson Field

Only Dry Holes Reported in North Louisiana District. Setback for Southwest Flank of Zwolle Field. Watching Deep Tests

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Mar. 21.—The completions in this division during the week resulted in a series of failures and disappointments with the exception of two good gas wells from the Jackson Field in Mississippi. All of the dry holes were reported from the North Louisiana district, several of which were wildcats abandoned at shallow depths for lack of funds to drill to deeper horizons. Several semi-wildcat tests in the Zwolle chalk rock area, particularly on the southwest flank, failed to hit a producing crevice, but had an abundance of salt water instead.

In the Rankin County area of the Jackson Field of Mississippi, Muse & Muse completed their No. 1 Cotton, Section 14-5n-1e, gauging 42,442,000 feet of dry gas from 2,446 feet. James Alexander, trustee's No. 1 Ridgeway & McGehee, Section 1-5n-1e, blew in unexpectedly while the crew was coming out of the hole. Before being killed, the well was estimated to be making 35,000,000 feet from 2,327 feet with four fourbles of drill stem in the hole. These two gassers are in extreme parts of the producing area following the east bank of Pearl River in Rankin County. The Alexander well is the farthest producer to the northeast and Muse & Muse are on the southwest extremity. This hot spot producing strip is now about 2 miles long and from one-half to 1 mile wide on the east bank of Pearl River. In the Hinds County area of this field, three tests have set casing above the pay horizon and will drill plug to test. Ferguson-Fuller and others' set 6⅝-inch at 2,449 feet in their No. 1 Cruse, Section 34-6n-1e, and the Love Petroleum Co.'s No. 1 Interior Lumber Co., Section 2-5n-1e, set 6⅝-inch at 2,435 feet. The Southern Petroleum Co.'s No. 1 Wilson, Section 23-6n-1e, set 4½-inch casing at 2,498 feet. The Belhaven College, a school for girls located within the city limits of Jackson, has spudded in on its No. 1 fee, Section 35-6n-1e, and set 10-inch casing at 755 feet. This well is being financed, as a gift to the school, by B. B. Jones, an independent operator.

The southwest flank of the Zwolle Field, toward the Blue Lake producing area, received a setback for connecting these two fields with four salt water wells out of as many completions. The Southland Drilling Co.'s No. 1 F. Martinez, Section 11-7-13, and its No. 1 Patterson, Section 2-7-13, both encountered salt water and were abandoned at 2,525 and 2,534 feet, respectively. The two tests were offsets to the east and north of Rush & French's No. 1 Martinez, completed a few weeks ago as a 3,000-bbl. gusher, but which later showed large quantities of salt water. Three-fourths of a mile southwest of these tests, The Texas Company's No. 1-B Geauque, Section 10-7-13, encountered salt water and was abandoned at 2,560 feet. The other failure for this part of the field, was Smith and others' No. 1 Hale, Section 1-7-13, in close proximity to the original wells of this extension. This test encountered the marl and chalk high and had a hole full of oil at 2,065 feet. The well was drilled deeper with cable tools without another show and was abandoned in salt water at 2,535 feet. One other dry hole was reported from the Zwolle area, in the extreme southeastern extension where several good wells have been completed recently. W. F. Lacey's No. 2 McNeely, Section 14-7-11, was abandoned as dry at 2,453 feet. The well was drilled to a total depth of 2,558 feet with barren results and the operators backed up and whipstocked at 2,400 feet and tested dry at the abandoned depth. The test is practically an offset to the southwest to the same operator's No. 1 McNeely which was completed a few weeks ago, flowing 600 bbls. daily.

Bossier Parish

In the northern part of Bossier Parish, near Plain Dealing, the Triangle Drilling Co.'s No. 1 Nuckolls, Section 7-22-13, had salt water and was abandoned at 2,804 feet. The test is a wildcat south of the Carterville Field, and is the second dry hole to be drilled on a block of about 3,000 acres by this company within the past year. Natchitoches Parish reported four wildcat completions, three of which had been temporarily abandoned for several months. Dr. H. S. Gerson's No. 1 Smith, Section 11-10-8, which blew in wild several months ago making an estimated 4,000,000 feet of gas and 7,000 bbls. of salt water from 585 feet, was officially abandoned at that depth. The well sanded up a few days after blowing in and has been standing with only the surface pipe in the hole. The same operator's No. 2 Smith, in the immediate vicinity of No. 1, was completed during the past week with an estimated flow of 3,000,000 feet of gas and some salt water from 479 feet. It is believed that the gas from both of these tests is coming from a stray sand of the Wilcox formation, above the Nacatoch. Two other tests in Natchitoches were abandoned at shallow depths after being shut down for the past year. Cooper and others' No. 2-A Cooper, Section 32-11-10, was abandoned at 1,515 feet, and C. M. Talley and others' No. 1 Talley, Section 29-11-10, was abandoned at 1,380 feet. In DeSoto Parish, the Relliott Oil Co. abandoned its No. 1 Gannon heirs, Section 12-11-16, at 1,965 feet.

Sabine Deep Test

The most interesting deep test in this section, R. L. Gay, Trustee's No. 1-A Long Bell Lumber Co., Section 10-8-13, northwest of the Zwolle Field in Sabine Parish, has finally succeeded in setting 6⅝-inch casing at 4,725 feet. The corrected total depth of the well, by steel line measurement, is 4,772 feet. The operators will test the Oolitic lime in the Glen Rose of the Trinity horizon within the next few days. The other deep test in the Zwolle area, 15 miles southeast of the Gay well, is the Loring Oil Co.'s No. 18 Bowman-Hicks, Section 15-7-12. This test is ratholing and reaming at 4,662 feet. The operators of North Louisiana are anxiously awaiting the outcome of these two deep tests, as it will determine whether or not there is a pay sand in the upper or lower Trinity in this area and which is expected to be more consistent in its production than the chalk rock of the Zwolle Field. Farther north in Sabine Parish, near the Pleasant Hill Field, Frank Foster is experiencing trouble with his No. 1 Steven, Section 2-9-11. The well blew in wild more than a week ago making an estimated 25,000,000 feet of gas with part of the drill stem in the hole, and was killed with a high pressure mud pump. All of the drill stem except six fourbles is stuck in the hole with the total depth at 3,358 feet.

North and east of the Zwolle proven production, H. W. Perritt has set 6⅝-inch casing in his No. 1 Brown Lumber Co., Section 6-7-10. This test is being drilled in the southwest corner of a 12,000-acre block assembled for a 3,600-foot well. The Root Refining Co. has taken over a block of acreage and u finished well of T. M. LeGrand in Se tion 34-7-13. The test, listed as No. Peterson, has been shut down for sever months for lack of funds at 2,243 fee The present operators have resumed oper ations and are washing to bottom at th old total depth.

The Arkansas and Mississippi wild cats have made little progress during th past week, but indications are that mor activity will be in progress in these area in the near future. With the exceptio of Shelby County, the border counties o East Texas have about ceased all wild cat operations. In Shelby two new test will be started in the vicinity of the O News' No. 1 Pickering, G. H. Patterso Survey, which recently swabbed a goo quantity of oil from the hole at 1,50 feet. This particular part of the county near the Louisiana lime, will probabl get several tests during the year, bot for shallow and upper Trinity pay.

Daily Average Runs

There was a net decrease of 1,010 bbls in the daily average runs from the field of North Louisiana and Arkansas during the past week. The Zwolle Field of Sabine Parish decreased practically 700 bbls. in its daily run to record the great est decline. The daily average runs from the several pools were:

NORTH LOUISIANA	
Caddo, light	5,33
Caddo, heavy	1,99
Cotton Valley	57
De Soto and Red River	2,03
Elm Grove	34
Haynesville	4,65
Homer	2,87
Holly	29
Pleasant Hill	31
Sarepta-Carterville	81
Urania	3,05
Zwolle	5,04
Total North Louisiana	27,38
Total previous week	28,24
Decrease	86
ARKANSAS	
Champagnolle	1,88
El Dorado	3,16
Lisbon	55
Nevada	1,24
Smackover, light	2,85
Smackover, heavy	22,05
Stephens	64
Urbana	75
Total Arkansas	34,13
Total previous week	34,13
Decrease	4
Total both states	61,41
Total previous week	62,42
Decrease	1,01

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Company, farm and location— Remarks:
Stauffer & Eshleman's No. 1 Caruth, Sec. 40-1n-7e ..... Derrick.

BOSSIER PARISH

Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11 ..... S.D. 1,890 ft.
Triangle Drlg. Co.'s No. 1 Nuckolls, Sec. 7-22-12, 1,985 ft. W, 1,980 ft. S, NE cor. ..... Drlg. 2,817 ft.

CADDO PARISH

Calatex O. & G. Co.'s No. 1 W. B. Hudson, Sec. 8-16-16, 2,640 ft. E, 2,865 ft. NW cor., Sec. ..... S.D. 2,800 ft.
Louana O. & G. Co.'s No. 1 Hammock, Sec. 32-19-6, 660 ft. N and W, SE cor. ..... S.D. 2,482 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4 ..... S.D. 1,100 ft.
Hudson et al's No. 1 Burton, Sec. 25-12-2e ..... S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6 ..... T.A. 3,097 ft.

DE SOTO PARISH

E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-13-15 ..... Drlg. 3,330 ft. hard shale and lime.
A. R. Smith's No. 1 Horn, Sec. 16-12-16, NE cor. Sec. ..... Rigging up.
Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16 ..... Dry and abnd. 1,965 ft.
DeSoto Development Co.'s No. 1 Nickey, Sec. 7-13-12 ..... Derrick.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13 ..... Reaming to bottom 1,785 ft.

MOREHOUSE PARISH

United Gas Public Service Co.'s No. 2 Sandidge, Sec. 11-20n-4e, 656 ft. S, 1,332 ft. W, NE cor. NW ..... S.D. 2,132 ft; high wtr.

(Continued on Page 59)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location— Remarks:
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15 ..... S.D. 2,275 ft.

MOREHOUSE PARISH

Southern Carbon Co.'s No. 57 fee, Sec. 9-20-4e, 660 ft. N, 1,317 ft. E, SW cor. ..... Completed 6,500,000 ft. of gas 1,148 ft.

OUACHITA PARISH

Carbon Cons.' No. 7 Guthrie, Sec. 50-20n-4e, 5,262 ft. N, 7,475 ft. W of cors. of Secs. 25, 26 and 49, in Sec. 50 ..... Location.

SABINE PARISH—ZWOLLE

L. F. Bahan's No. 1 Quayhagle, Sec. 11-7-11, 250 ft. N, 330 ft. W, SE cor. Sec. ..... W.O.S.R. 2,585 ft.
Coates Pet. Co.'s No. 2 McNeely, Sec. 14-7-11, 350 ft. S and W, NE cor. NW NE ..... Derrick.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 ..... W.O.S.R. 2,609 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 ..... S.D. 2,464 ft.
W. F. Lacey's No. 2 McNeely, 550 ft. E, 330 ft. N, SW cor. NE NE, Sec. 14-7-11 ..... Dry and aband. 2,453 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 ..... Drlg. 2,428 ft.
Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-12 ..... Reaming 4,662 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D; W.O. 2,579 ft.
Pelican Nat. Gas Co.'s No. 11 La. Long Leaf Lbr. Co., Sec. 10-7-11, 330 ft. N and W, SE cor. NE NW .... W.O.S.R. 2,592 ft.
Ohio Oil Co.'s No. 9 Bowman-Hicks, Sec. 35-8-12, 350 ft. N, 330 ft. E, SW cor. NW SE ..... Set 10-in. 160 ft.; drlg. 1,850 ft.

(Continued on Page 59)

SUCCESS

ONE of the encouraging "signs of the times" is the fact that the dollar has ceased to be the one infallible measure of success. Looming ever larger, the word "service" is taking its rightful place in the vocabulary of successful men and enterprises.*** A Natural Gas system is primarily an institution for service. To be successful, it must serve, well and adequately. For then profit will surely follow.

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HOPE

· AMERICAN INDUSTRY NEEDS MORE NATURAL GAS ·

Extend East Hackberry and Lost Lake S

Additional Wildcat Developments Started and Work Resumed in Several Gulf Coast Areas. Active Play on East Side of Barbers Hill

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Mar. 21.—Field developments on the Gulf Coast the past week were marked by important extensions on the East Hackberry Dome, Cameron Parish, Louisiana, and the Lost Lake Dome, Chambers County, Texas. Otherwise, completions were of little interest and operation results were disappointing for new production. The week, however, saw the starting up of additional wildcat development as well as the resumption of work in more areas where activity has been suspended for some time.

The East Hackberry extension was made by Calcasieu Oil Co.'s No. 1 Unsurveyed Island, which came in March 16 flowing 2,000 bbls. of pipe line oil through a three-quarters-inch choke and with a pressure of 335 pounds. Production has steadily increased and at latest report it was at the rate of 2,215 bbls. daily, making the well one of the best which has been completed in the field.

Location of this well is 1,035 feet south and 442 feet east of the NW cor., Section 24-12s-10w, which is about 1,500 feet to the southwest of the nearest production on top the dome and about 2,000 feet to the northwest and up on the dome from the nearest flank sand production which skirts the south edge of the dome.

The well opens the third pool which has been found to date in formations overlying the top of the dome. Unlike the other two, however, it is producing from the lime rock over the dome although at approximately the same depth as the productive sands in the others. Gravity of the oil, which is 23.9 degrees (corrected), is about the same as in the other shallow pools. The lime rock in the new well is from 2,709 to 2,865 feet with oil showing from 2,719 feet to bottom where four joints of 4½-inch screen with a joint of blank between each screen joint were set on the bottom of a full string of 4½-inch casing.

Two years ago to the month the first pool on top the dome was opened, this being by Calcasieu Oil Co.'s No. 17 Watkins, a 1,200-bbl. well, in a sand at 2,707 feet. Previously the only production at East Hackberry had been from flank sands from 3,800 feet to below 4,200 feet found in a narrow line of wells along the south edge of the dome. No. 17 Watkins was about 1,500 feet to the north of the flank sand wells and resulted in over a dozen shallow sand wells being completed in that particular area. The second shallow sand pool was opened during the summer of 1931 by J. G. Sutton's No. 1 Irwin, located approximately 1,500 feet to the northeast of the first area. That well was completed for 1,200 bbls. in sand at 2,980-89 feet and was followed by the drilling of nearly a dozen wells in that area.

The unsurveyed island on which the new well is located is in Kelso Bayou, drilling rights in which are held by Yount Lee Oil Co. The latter company is expected to start at least one offset immediately.

Lost Lake's Good Well

At Lost Lake, Pure Oil Co. completed its No. 14 Mayes, extending production on that dome 650 feet east. The well, one of the best yet completed there, is in the sand at a total depth of 2,819 feet where 42 feet of 4¾-inch screen was set with 2,679 feet of 2½-inch tubing. Initial production was at the rate of 600 bbls. daily through a three-eighths-inch choke with pressure of 175 pounds on the tubing and 690 pounds on the casing. The oil is 22.5 gravity (corrected).

This well created considerable interest several weeks ago when it tested a shallow sand at 1,831-83 feet, this being a new horizon as all production so far at Lost Lake is from the 2,800-foot sand. In the shallow sand, however, the well tested only a small amount of gas and then started to flow salt water so it was deepened to its present level.

Pierce Junction

Rio Bravo Oil Co. completed another good well on the west flank of the Pierce Junction Dome in its No. 23-A Settegast, which, with 66 feet of 4½-inch screen in the hole at 4,161 feet, came in flowing 960 bbls. of pipe line oil daily through a three-eighths-inch choke. This company's No. 21-A Settegast, which came in late the preceding week flowing by heads from sand at 4,313 feet, was put on the pump and is making around 300 bbls. daily.

Matagorda County

United North & South Oil Co.'s No. 1 McDonald, east flank of the Markham Dome, Matagorda County, tested salt water in sand at 3,678-98 feet and is being plugged to a sand at 3,577-81 feet, in which horizon an effort will be made to put it on the pump for a small producer. In the latter sand it swabbed about 100 bbls. daily in a test several weeks ago. The well is about 800 feet to the east and out from the dome. Ellis Hamill's No. 1 Meyers, discovery well of flank sand production is on the northeast side of the dome. The latter well, completed last July and which has established an unusually consistent production record, is in sand at approximately 3,300 feet. Only one other well has been drilled in that area.

Some interest now is being centered on United North & South Oil Co.'s No. 1 Stoddard, a deep rank wildcat located in the J. C. Keller Survey on the edge of the Buckeye Townsite, Matagorda County, which is reaming to set casing to test a showing of oil in a sand at a total depth of 7,828 feet. A string of 6⅝-inch casing will be run.

Barbers Hill

Although operations have been more or less routine for several weeks, Barbers Hill is expected to figure conspicuously in field developments within the next few days with a series of wells in the active play up on the dome on the east side now on the sands or nearing the producing horizons. The Texas Company, however, failed to make a good showing in its No. 8 Wilburn, which, in the 4,400-foot Miocene sand at a total depth of 4,392 feet, came in flowing by heads a small amount of oil for a short time but then went dead. This company also worked over its No. 7 Wilburn in the sand at 4,422 feet and put it on the pump for approximately 75 bbls. net oil daily.

Jennings Field

At Jennings, Acadia Parish, Louisiana, Yount Lee Oil Co. has failed to make a well in its No. 10 Housierre-Latrielle, which is in sand at a total depth of 8,678 feet. The hole was bailed dry and the test has been abandoned temporarily. This well had given indication of breaking the depth production record on the Gulf Coast, a record now held by the same company's No. 7 Housierre-Latrielle at 7,447 feet. These wells are located southeast of the Jennings Field proper. Kathleen Oil Co.'s No. 1 Syndicate fee, northwest side of the dome, deepened to a sand at 4,025 feet where screen was being set, also has been shut down following the twisting off of drill pipe in the hole.

Moss Bluff Dome

Humble Oil & Refining Co.'s No. 1 Sterling, which sought to test shallow sand possibilities on top the Moss Bluff Dome, southern Liberty County, has been abandoned as dry in cap rock at a total depth of 1,624 feet. This test was 30 feet west and up on the dome from No. 1 Sterling, the first test drilled by Humble and abandoned in salt at 2,012-2 feet.

Hankamer Test

Gulf Production Co. is resuming development at Hankamer, Liberty County, where it has rigged up for No. 1 Boyt, located on the extreme east edge of the productive area. This will be the first test drilled since before last winter when drilling operations were suspended following the abandonment of No. 1 Boyt as a dry hole on the extreme north end. The latter marked the first failure after the drilling of 13 consecutive producers in the Hankamer Field proper. Four deep dry holes have been drilled by the Gulf in the Hankamer area but these were a considerable distance from the field itself.

Genoa Prospect

Development also is being resumed on the Genoa geophysical prospect, southeast of Houston where Flannigan and associates have made location for No. 1 Woodburn, 200 feet out of the northwest corner of the tract in the August Whitlock Survey. During 1929 and the early part of 1930 Humble Oil & Refining Co. drilled two deep tests in the same vicinity on this prospect and gave up its acreage. However, gas showings were encountered and one of the tests, No. 2 Woodburn, was brought in for a 15,000,000-foot well with a pressure of 750 pounds from the sand at 3,425 feet. This production failed to hold up and the hole was deepened to 5,241 feet.

Rabbs Ridge

Cullen & West and Gulf Production Co.'s No. 3 George, Rabbs Ridge, Fort Bend County, has picked up the deep producing horizon of that field and in the sand from 5,130-42 feet is reaming to set casing. If successful, this well will mark a 1,000-foot eastward extension of the 5,200-foot sand. The sand already has been proved for 1½ miles from north to south but so far drilling has been confined to a narrow strip. There have been no defining limits to the field to date and the extensive proportions of productive area are indicated in the uniform depth of the sand area already proved.

Leesville Field

Two new additions to the Leesville Field of LaFourche Parish are expected in the near future. There, The Texas Company's No. 4 L.L.&E. has encountered the pay horizon at 3,722-46 feet and casing has been run to test. Pop Oil Co.'s No. 1 Esponge Vizier, 78 feet north and 298 feet east of The Texas Company's No. 4 L.L.&E., has been standing cemented on the sand at 3,711-19 feet. Two producers previously have been completed at Leesville in the same sand, those being The Texas Company's Nos. 2 and 3. The new wells will mark northeastward extensions.

Lockport Field

Union Sulphur Co.'s No. 2 Martha Moss, northwest extension area of the Lockport Field, Calcasieu Parish, Louisiana, tested salt water in sand at 6,564-72 feet, to which it had been deepened from 6,519-29 feet, where it formerly was completed flowing 2,500 bbls. daily a year ago. At latest report it was drilling deeper in sand at 6,660 feet.

GULF COAST FIELDS AND WILDCATS

Week Ending March 19

BARBERS HILL—CHAMBERS COUNTY

Company, farm and location—	Remarks:
Bashara Oil Co.'s No. 2 Tarbutton, Henry Griffith League, 25 ft. W of Texas Gulf Producing Co.'s No. 2 Tarbutton	Sand 3,631 ft.; cmtd. 9⅝-in. csg. 3,391 ft.
R. E. Ferrell's No. 2 Wilburn, Henry Griffith League, 215 ft. W of No. 1 in center of 45-acre tract	Waiting cement to set 1,870 ft.
Gulf Prod. Co.'s No. 7 Wilburn, Henry Griffith League, 177 ft. W of No. 6	Drlg. shale and lime 4,030 ft.
McAlbert Oil Co.'s No. 5 Wilburn, Henry Griffith League, 375 ft. of No. 4	Oil sand 4,321 ft.; cmtd. 7⅝-in. csg. 4,290 ft.
Mills Bennett Prod. Co.'s No. 1-B Gulf fee, Wm. Bloodgood Sur., 500 ft. E and 50 ft. N of SW cor. of "B" lease	T.D. 1,392 ft.; cmtd. hole to 1,195 ft.
Mills Bennett Prod. Co.'s No. 2 J. C. Means, Henry Griffith Sur., 300 ft. W of No. 2 in center of strip	Spudded.
Rio Bravo Oil Co.'s No. 3 Fisher, Wm. Bloodgood Sur., 300 ft. E and 33 ft. S of NW cor. of tract	Derrick.
Sun Oil Co.'s No. 14 J. Wilburn, Henry Hodges Sur., 150 ft. W of No. 12 and 50 ft. from N line	Spudded.
The Texas Company's No. 6 Wilburn (D.D.), Henry Griffith League	Coring sand 4,972 ft.
The Texas Company's No. 7 Wilburn (D.D.), Henry Griffith League	Reset 44 ft. of 3-in. screen 4,422 ft.; comp. pumping 75 bbls. net oil.
The Texas Company's No. 8 Wilburn, Henry Griffith League, 25 ft. W of No. 5 and 50 ft. N of S line of tract	T.D. 4,392 ft.; set 34 ft. of 7-in. screen; flowed 70 bbls. by heads in 20 hours; now dead.
Texas Gulf Producing Co.'s No. 1 Scott Fitzgerald, 125 ft. from S line and 71 ft. from E line of Strip No. 1, Henry, Griffith League	Drlg. shale and lime 4,950 ft.
Texas Gulf Producing Co.'s No. 9-B Kirby, Henry Griffith League, 50 ft. out of SW cor. of J. M. Fitzgerald 50-acre tract and 110 ft. S of N line of Kirby tract	T.D. in salt 2,379 ft.; plugged to 1,700 ft.; drlg. cement and salt 2,078 ft.
Texas Gulf Producing Co.'s No. 6-H Kirby (W.O.), H. Griffith League	Cutting and pulling liner 5,108 ft.
Texas Gulf Producing Co.'s No. 7-A Barber, Henry Griffith League, 712 ft. from W line and 225 ft. from N line of tract	Drlg. rock 2,216 ft.

HUMBLE—HARRIS COUNTY

J. E. Burt et al's No. 2 C.O.&G.-The Texas Co. fee, J. B. Stevenson Sur., 450 ft. N of No. 1	Location.

(Continued on Page 62)

Showings in Southwest Texas Wildcats

One in Southern Live Oak County, 20 Miles From Production. Good Core in Eastern Williamson County. Luling Has Four Interesting Tests

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Mar. 21.—There were several good sand showings over Southwest Texas the past week in wildcat and semiwildcat tests, all of them waiting for cement to set or for drill stem sand testers and some important wildcats have been abandoned dry.

Henderson Coquat got 11 feet of sand at 2,461-72 feet in No. 2 Sanger in southern Live Oak County, the lower half of the core showing oil. He was fixing to make a drill stem test late in the week. The well is 20 miles from any production and is 1,300 feet northwest of No. 1 Sanger, which also had a showing but accompanied by salt water at about the same depth. No. 1 topped the Jackson at 2,101 feet, and No. 2 at 2,071 feet, and each had showings in the top of the Jackson but with salt water.

Phillips Petroleum Co. geologists worked the block and the company got it together and made a deal with Coquat to drill it. Humble Oil & Refining Co. recently paid $16,000 for acreage in the block.

No. 1 Sanger was completed early this year at 4,007 feet and had an abundance of sands and plentiful thickness of sands, with some showings of oil and considerable salt water. The plentiful sands and showings in No. 1 were largely responsible for the drilling of No. 2. The test is about 1 mile from the west line of the county and about 8 miles from the south line of the county and in a territory that has not seen much wildcatting. The Mount Lucas (Cartwright) gas field is 20 miles to the east and there is production in almost every direction at a distance of about 20 miles, the Calliham Field in eastern McMullen being 20 miles north.

Balcones Fault Zone

Taylor Refining Co. and G. B. Peterman's No. 1 Galler in eastern Williamson County got a 3-foot core out of the Edwards lime at 1,490-93 feet that carried some oil and has set casing to make a test. It is said to look pretty good and is 60 miles north of the three Edwards lime pools in Caldwell and Guadalupe, the only pools producing from the Edwards lime. No. 1 Galler is about 1½ miles north of the town of Thrall.

Lately there has been an increase in activity in the counties of the upper Balcones Fault zone in Williamson, Milham, Travis and Bastrop. There is said to be a demand for crude by the refineries at Taylor and Thrall which were built to handle the production from the Chapman Pool and operators are endeavoring to find more Serpentine pools like the Chapman Pool. In the L. Kimbro Survey in northeastern Travis County several shallow tests have had encouraging evidence of a Serpentine plug somewhere that will pay off. Ray & Orth have made a location for No. 1 Lundgren in the same survey 550 feet from the north line and 150 feet from the west line of the 133-acre tract, and Fuchs abandoned his No. 1 Shiffler in the A. C. Caldwell Survey, which is immediately south of the Kimbro Survey, after topping the Serpentine at 722 feet, but finding it dry down to 931 feet, where it was abandoned.

A failure of note in the upper Balcones is Red Bank's No. 2-A Foster, abandoned at 5,403 feet after topping the Edwards at 5,310 feet. Previously this test was reported in Edwards at 5,052 feet, but further identification of formations proved this incorrect. It is in the eastern extremity of Milam County and considerably removed to the east from the Balcones, and hence gets formations lower. No. 1 Foster was lost at 4,685 feet without getting to the Edwards lime.

Luling Area

In the Luling area attention centers in four tests, two in southern Guadalupe, one south of Kingsburg and southeast of the Luling Field, and a new test being started northeast of the Luling Field. Tidal Oil Co.'s No. 1 Black in the Valentine Bennett Survey at about 1,000 feet, Dart Oil Co.'s No. 1 Hamilton in the Williamson Survey at about 1,500 feet, both 9 miles south of Seguin, and Luling Oil & Gas Co.'s No. 1 Brown, south of Kingsbury, at around 1,500 feet are all due to reach the chalk or the Edwards by the end of this week or early next if conditions are favorable.

The new test is the C. J. Webster Oil & Gas Co.'s No. 1 McCrory in the Neill Survey about 2 miles northeast of the Branyon Pool and about 3 miles southwest of the Buchanan Pool. It is directly in line with these pools and with the Luling Pool on the southwest and the Dale Field on the northeast. The Dale and Buchanan Pools produce from Serpentine but the Branyon and Luling from the Edwards lime. There have been enough tests drilled in the area to prove the faulted condition. The Branyon Pool consists of only two wells and has been entirely surrounded by dry holes, but the two wells are now after four years still producing so much oil that it is thought it must be coming from some distant pool along the fault plane. The reservoir around the two wells is not sufficient to warrant the belief that production is from a local accumulation. Hence efforts have been made in the past to pick up production along the same line farther to the northeast, and Webster's No. 1 McCrory is located with that idea.

E. R. Marts, who failed to find a Serpentine plug southwest of Elgin in northern Bastrop County, has moved to a location east of Elgin and is starting an Edwards lime test.

One other test in the Balcones fault zone aimed at finding a Serpentine plug seems to have missed it. Kistler and others' No. 1 Carter, 3 miles west of the Lytton Springs Serpentine plug pool, has gone into the chalk at 1,485 feet and the chalk is found below the Serpentine when there is any Serpentine. It is standing.

Pettus District

Some new activity is starting in the Pettus district. Henderson Coquat, independent operator at Three Rivers, has acquired a half interest in the west third of the Barnsdall Oil Co.'s Leroy Roberts lease and is to drill four wells. Barnsdall has one well at 3,655 feet in the northwest corner of this lease, which is at the south end of the group of wells composing the Cosden Pool. Coquat's first location is 300 feet from the west line of the lease and 300 feet north of the northeast corner of the Gremmel lease, which makes it about 1,500 feet south of the Barnsdall's No. 1 Roberts in the Cosden Pool, producing at 3,655 feet, and about 2,600 feet north of Slick-Seeligson's No. 3 Ray, in the west end of the Pettus Extension, producing oil at 3,900 feet.

Other than this new line of activity, the Pettus Field at this time is quiet. Coquat is to drill No. 1 Mauldin, at the east end of the extension. Mauldin made a location on land he owned in fee. Coquat has arranged to drill it, but it is understood the location will be changed and moved to 647 feet north of the south line of the survey and 150 feet east of Medio Creek. This throws the location over two locations north and a little east of Houston Oil Co.'s No. 4 Portis, which has been abandoned at 4,410 feet, and it is several locations east of nearest production.

Coast Counties

Houston Oil Co., after a drill stem test that showed oil and mud, has set casing in No. 1 McGregor in the Saxet Field, a mile north of production, and is waiting on cement. Casing was set at 4,254 feet. The test had enough gas to make a big well at 4,100 feet, but it was cased off. This well is being watched with interest for several reasons. It is about 3 miles west and a little north of the three wells of the Saxet Oil Co. on the Dunn lease that produced at 4,300 feet, the only wells that produced at that depth, and also it is north of nearest production by about 1 mile and north and west of Neal, Milton & Kepley's No. 1 Roark that had such a good showing at about 4,832 feet.

Kepley has spudded in his No. Speer and Hocker, 1,600 feet west of No. 1 Roark, Rutherford is building derrick on his No. 1 Hunter and there is considerable new activity in the area.

Also north of Nueces Bay in San Patricio County the United Production Co. is going back into No. 3 Cage, which was left standing some time ago at 4,041 feet, and will deepen it to 4,900 feet.

Jim Wells County

Magnolia Petroleum Co.'s No. 1 Seeligson in southern Jim Wells County, which some weeks ago had an interesting showing at 3,414-51 feet, has another at 4,927-33 feet. It took two 3-foot cores, the first at 4,927-30 feet and the next at 4,930-33 feet, and had a good odor of oil. Pipe collapsed when about to run a drill stem test. The hole has been cleaned out and is waiting for a new string of drill stem.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

Company, farm and location—	Remarks:
ATASCOSA COUNTY	
American Central Oil Co.'s No. 2 Mary McConnell, 150 ft. W of E line, 300 ft. S of No. 1, Blk. 138, W. C. M. Baker Sur., 3 miles W and 6 miles S from Somerset	T.D. 1,660 ft.; standing.
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1	T.D. 2,980 ft.; preparing to resume.
BLANCO COUNTY	
Hardy-Sitton's No. 1 McMillan	T.D. 602 ft.; S.D.
Theo. Hick's No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm, in Thomas M. Fowler Sur. No. 27 in extreme south point of county	T.D. 1,650 ft.; S.D.
Liles Adams et al's No. 1 Luders, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T.D. 1,100 ft.; standing.
BASTROP COUNTY	
E. R. Marts and W. J. Beavens' No. 1 R. L. Carter, 450 ft. from NE line, 150 ft. from NW line of 100-ac. tract in George J. Glasscock Sur.	Spudded in.
Sun Oil Co.-Humble Oil & Ref. Co.'s No. 1 Powers, 400 ft. of N and E lines of Blk. 197, Bastrop town tracts	T.D. 3,931 ft.; drlg.
BEE COUNTY	
Alexander et al's No. 1 McFall, 3 miles S Skidmore	T.D. 2,100 ft.; standing.
Humble O. & R. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tract in Garrett Roache Sur., S part of county	T.D. 5,310 ft.; S.D.
BELL COUNTY	
Bridwell et al's No. 1 Nichols, 150 ft. to W and N lines of farm, N. Roberts Sur.	T.D. 555 ft.; abnd.
Bridwell et al's No. 1 G. A. White, 550 ft. to E line, 150 ft. to S line of farm, Nancy Roberts Sur., 4 miles SE from Belton	T.D. 557 ft.; abnd.
W. A. Kiecka's No. 1 W. W. Thornton, 500 ft. from N line, 1,058 ft. from E line of tract in R. Roberts Sur.	T.D. 655 ft.; abnd.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur.	T.D. 450 ft.; S.D.
Jas. Scroggins' No. 2 Warrick, Ingram Sur.	T.D. 1,482 ft.; fishing.

(Continued on Page 60)

SOUTHWEST TEXAS PROVEN AREAS

Company, farm and location—	Remarks:
COSDEN POOL—BEE COUNTY	
Henderson Coquat's No. 1 Leroy Roberts, 300 ft. from W line of lease, 300 ft. N of NE cor. of Gremmel tract	Location.
PETTUS POOL—BEE COUNTY	
Houston Oil Co.'s No. 4 Portis, 310 ft. E of No. 3 Portis in A. Smaller Sur.	T.D. 4,215 ft.; coring.
J. L. Mauldin's No. 2 fee	Changing location.
Slick-Seeligson, Inc.'s No. 5 Ray, 300 ft. E of No. 3 Ray in George A. Kerr Sur.	T.D. 3,886 ft.; set csg.
COOKSEY POOL—BEXAR COUNTY	
Chiquita Oil Co.'s No. 3 Cooksey, 480 ft. from E line, 330 ft. from S line of tract in J. W. Rialls Sur.	Location.
Chiquita Oil Co.'s No. 1 Piniazek, 690 ft. from N line, 160 ft. from E line of tract in Martinez & Arocha Sur.	T.D. 1,669 ft.; comp. 20 bbls.
Chiquita Oil Co.'s No. 1 Dan Kosub	T.D. 1,579 ft.; set csg.
ECKERT POOL—BEXAR COUNTY	
Alamo Nat. Gas Co.'s No. 4 Gembler in Manachaca Sur. No. 51	Location.
F. H. Eckert & Son's No. 9 Sandemer, 150 ft. to N and W lines	Location.
F. H. Eckert & Son's No. 10 Sandemer, 400 ft. E of No. 9.	Location.
F. H. Eckert & Son's No. 1 Louis Brehm, W offset to No. 3 John J. Brehm	Location.
Gatlin Oil Co.'s No. 11 I. A. Beck, 700 ft. from SE line, 156 ft. from SW line of tract in J. Montes Sur.	Location.
W. R. Swearingen's No. 8 Halbadier in Perez Sur.	Moving in.
W. K. Oil & Gas Co.'s No. 3 Strunk, 300 ft. E of No. 2	Location.
SALT FLATS POOL—CALDWELL COUNTY	
Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tract, A. Floyd Sur.	T.D. 2,778 ft.; coring dobie.
John Storey's No. 1 Dickerson, 150 ft. to N of center of S line of tract, John R. Rains Sur.	Rigging up.

(Continued on Page 62)

G-E Mechanical-drive Turbines

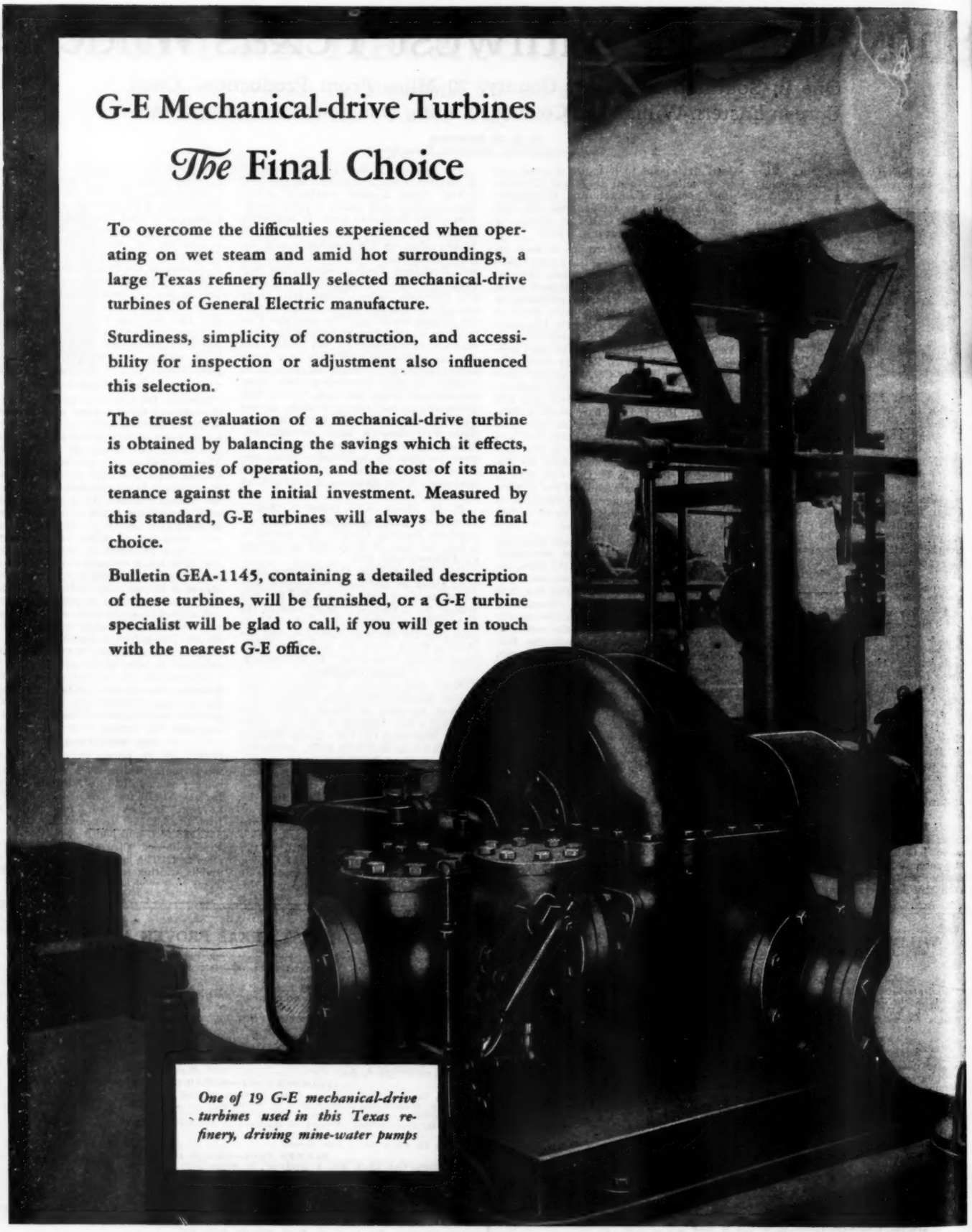
The Final Choice

To overcome the difficulties experienced when operating on wet steam and amid hot surroundings, a large Texas refinery finally selected mechanical-drive turbines of General Electric manufacture.

Sturdiness, simplicity of construction, and accessibility for inspection or adjustment also influenced this selection.

The truest evaluation of a mechanical-drive turbine is obtained by balancing the savings which it effects, its economies of operation, and the cost of its maintenance against the initial investment. Measured by this standard, G-E turbines will always be the final choice.

Bulletin GEA-1145, containing a detailed description of these turbines, will be furnished, or a G-E turbine specialist will be glad to call, if you will get in touch with the nearest G-E office.



One of 19 G-E mechanical-drive turbines used in this Texas refinery, driving mine-water pumps

175-34A

GENERAL ELECTRIC

Eunice Well Deepened Increases Flow

New Location on Rattlesnake Dome. Greasewood Completion Proves Small Well. New Locations Made in Montana Area. Two Tests in Utah

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Mar. 21.—The California Co.'s No. 1 Meredith, in the Eunice Pool, New Mexico, produced at the rate of 1,315 bbls. a day after being shot and cleaned. R. D. Compton's No. 1 Compton, in the Artesia area, will probably make 25 bbls. per day settled production. Continental Oil Co. has made a location for another shallow well on the Rattlesnake Dome. Colorado had one completion in Continental Oil Co.'s No. 2 Gadbois, in the Greasewood Pool, a small well, and Greeley Oil Co.'s No. 1 Gadbois was abandoned. No new locations were reported.

Midwest Refining Co.'s No. 4 Rosenberg, Frannie Dome, in Wyoming pumped 610 bbls. the first day.

In Montana two locations were made in the Pondera Field and one in the Border district. A deal involving the Fulton holdings in Glacier County was reported closed.

Two operations were reported active in Utah.

WELLS IN COLORADO FORETELL WEATHER

An interesting story comes from northeastern Colorado where four townships have been leased by an operator in which a large magnetometer high has been worked out. On a clear day, when there was no indications of a storm, two of the leasing party were in a farmer's barnyard talking over terms when they heard a roar like an automobile starting up in low gear. An inquiry developed the response that it probably came from a nearby water well. The farmer then explained that whenever a storm was approaching the water wells in the vicinity roared in that way. A visit to the well resulted in hearing sounds of water splashing against the walls. The next morning the ground was covered with snow. The farmer said that the wells never failed to predict a change in the weather and that a number of years ago, just prior to an unusually severe storm, some of the wells slopped over the top. The only explanation offered is that some force like that of the tide, which improves the pumping and flowing of wells near the seacoast when it is coming in, exerts some pressure on the water wells. "Believe It Or Not."

NEW MEXICO

Lea County

Only two wells are being drilled in the Hobbs Pool at this time. Midwest Refining Co.'s No. 8 Turner, C NW SW Section 34-18-38, cemented 10¾-inch at 2,750 feet with 400 sacks and is waiting. Same company's No. 29 State, C SW SW Section 10-19-38, is building rig.

In the Eunice Pool, California Co.'s No. 1 Meredith, SE cor. NE Section 19-21-36, an old well recently deepened to 4,000 feet, was plugged back to 3,950 feet and shot with 240 quarts at 3,874-3,950 feet. It produced at the rate of 1,315 bbls. daily on the first test of 11½ hours and later on a 4-hour test produced at the rate of 950 to 1,000 bbls. per day. The gas apparently decreased from 8,500,000 to 5,000,000 feet per day. When temporarily completed last April at 3,950 feet it made 225 bbls. initial.

Eddy County

R. D. Compton's No. 1 Compton, NE NW NE Section 8-18-27, three-fourths of a mile south of a producer on the Brainard tract, and 2½ miles southwest of the Compton Pool, is a completion and is estimated at 25 bbls. settled production 1 foot in the sand. Total depth is 1,239 feet. The 2-inch tubing was run to 1,035 feet and set with a packer and the well produced 28 bbls. in nine hours. The rig will be moved to Compton's No. 4 Brainard, SE SE Section 5-18-27, which has been standing on top of the sand at 1,217 feet since last fall.

Grayburg Oil Co.'s No. 3 Burch, C SW NW Section 19-17-30, Jackson area, is drilling at 1,700 feet in anhydrite. It had a show of oil at 1,390-1,400 feet and a show of gas at 1,470-75 feet. The gas increased at 1,540-45 feet and gauged 600,000 feet. This well is a north offset to its No. 2 Burch, which was completed as an oil and gas well at 3,204 feet in 1929.

Flynn, Welch & Yates' No. 1 State (Paul) NE cor. SE Section 26-20-27, Artesia area, is rigging up.

De Baca County

Landowners Oil Co.'s No. 1 McAdoo, SW cor. NE Section 16-1s-27, Buffalo Creek, is running 6⅝-inch to set at 4,675 feet. A new 5,000-foot casing line and a new drilling line have been installed.

Bernalillo County

Norins Realty Co., Inc.'s No. 1 Pajarito grant, NW cor. NE Section 22-9n-1e, is shut down at 1,185 feet.

San Miguel County

Hershfield Oil Development Co.'s No. 1 Cabra Springs, C NE Section 21-12n-22, is bottomed at 2,250 feet and preparing to run and carry the 8¼-inch. It had five bailers of water per hour at 2,230-50 feet.

San Juan County

Continental Oil Co.'s No. 28, 1,320 feet from the west line and 2,310 feet from the south line, Section 12-29-19, Rattlesnake Dome, is rigging up for a shallow well to the Dakota. Its No. 24, SW NW SW Section 1-29-19, the Pennsylvanian test, is coring and running sand tester at 6,888 feet in an attempt to correlate the formations with the log of No. 17, the discovery well. This test will be carried to 8,000 feet, or more, if necessary.

COLORADO

Weld County

Drilling operations in the Greasewood Pool temporarily are at a standstill with the listing this week of Continental Oil Co.'s No. 1 Gadbois, C SE SW Section 24-6n-61, as a completion. The 2½-inch tubing was run the past week and the well put on production, making 27 bbls. the first day and 12 bbls. the second day. The total depth is 6,701 feet and it cut 20 feet of the Muddy topped at 6,670 feet. The location is one-half mile south of the discovery well and apparently on the edge of the structure in that direction. The Ohio Oil Co. has two locations, offsets on the south and east of this well on the Gearhart tract, on which drilling has been delayed pending the outcome of No. 1 Gadbois. It is doubtful if the south offset will be drilled and no announcement has yet been made as to the east offset.

Greeley Oil Co.'s No. 1 Gadbois, C NW NW Section 25-6n-61, a diagonal offset on the southwest to Continental's No. 1 Gadbois, which has been standing for some time at 6,691 feet, has been abandoned. It had a show of oil in the Muddy and at one time was estimated good for 20 bbls. per day as indicated by bailing and swabbing, but this was not considered commercial at that depth and when the sand pump and 3,000 feet of sand line was lost in the hole, it was decided to abandon the operation. Had this well come in as a producer, it probably would have had considerable effect on local gasoline marketing conditions. It was financed principally by a co-operative marketing concern and had it been a producer a skimming plant was the logical outcome.

Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW Section 24-6n-61, the discovery well, which went off production several weeks ago, recemented 4¾-inch on top of the sand at 6,667 feet, but was delayed in cleaning out on account of the bad weather. Officials are confident production will be restored with the shutting off of cavey ground and water leaking from behind the 4¾-inch, which hung 70 feet off bottom for a year and a half.

Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE Section 14-6n-61, on the western edge, which has been attempting to plug off the Dakota water preliminary to shooting off 7-inch and testing a show in the Timpas at 6,260-70 feet before abandoning, has not yet completed this work.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, C S half, NE Section 7-4s-66, near Aurora, after underreaming and lowering 4¾-inch to the top of the hard slate, made 4 feet of new hole to 5,946 feet. This put it into another very hard rock. The outcome of this test may depend upon whether a good body of sand is found below this cap. At around 5,920 feet the formation showed a change and the bailer has brought one or two gallons of oil each time it was run. In fact each thin streak of sand or sandy shale encountered in the last 200 feet has shown a little saturation. Opinions continue to vary as to the identity of the horizon. This well is on a 160-acre tract and the well and the tract are owned jointly by MacDeb Drilling Co. and the Fitzsimmons Oil & Leasing Co.

Adams County

Hills Dome Lease Development Co.'s No. 1 Hills, SE cor. Section 27-3s-64, near Watkins, is drilling below 3,970 feet and running tower.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor. Section 24-4s-69, near Denver, is drilling at 4,270 feet. No water has been encountered below the 6⅝-inch at 3,950 feet.

Larimer County

Mayer Oil Co.'s No. 1 Reed, SW cor. NW Section 28-4n-69, Berthoud district, is bottomed at 3,150 feet and landed the 6⅝-inch at 3,050 feet. This test is estimated to be about 25 feet off the Nio-Benton, or Codell sandstone.

Moffat County

Ohio Oil Co.'s No. 1 Bogenschultz, C SE SE Section 9-6n-91, Craig Dome, is

(Continued on Page 69)

TWIN RIVER STRUCTURE TEST FINDS WATER IN DEEPENING

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 19.—On Twin River structure southeast of Lethbridge, Alberta, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, was given a shot with 4 quarts in the top of the Madison around 3,890 feet. When the first crude show was struck some weeks ago the oil in this horizon bailed at a reported rate of 100 to 150 bbls. a day; but in deepening water was struck, and it is claimed subsequent cementing shut off part of the oil horizon. The well has been pumping around 10 bbls. a day since it was cemented back, and the shot does not seem to have increased this yield very much. A further shot may be tried. Owing to water conditions the hole has to be carefully handled.

West of Lethbridge, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, which got a noncommercial oil show in the same horizon at 4,551 feet in deepening, drilled into a large flow of water at 4,574 feet. The crew is working to shut off the bottom water. A similar condition was encountered in Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, farther to the northwest, where oil was struck in the top of the Madison at 4,920 feet and some difficulty was experienced in shutting off the underlying water. This test is now standing cemented, and will sidetrack lost tools and redrill to the oil horizon. Of the three wells which got oil shows in the top of the Madison, Hudson's Bay's No. 1 Keho had apparently the most promising showings, in addition to a small commercial production of crude oil from the Benton shale horizon. The latter was shut off while deepening to the limestone.

The recent shows in the Madison in southern Alberta are related to the international Sweetgrass Arch structure. E. B. Emrick, petroleum geologist, in a recent comment on the possibilities of this structure, said:

"The major factor in the accumulation of oil on the Sweetgrass Arch has been the doming of the strata; however, fault terraces, noses and porosity have been a very important factor in preventing the oil from being flushed out of the sands by the active circulation of ground water which is very evident on the arch, especially at the Ellis-Madison contact. At this horizon there is a sulphur water table with a pressure great enough to cause an artesian flow at elevations up to 3,200 feet above sea level. The faults have caused fissures in the Madison limestone and older rocks, allowing the oil from these rocks to migrate upward. The offsetting of the sands and breaks with shales has sealed them. The folding and faulting probably took place during early Montana (Upper Cretaceous) time, causing the impervious shales of the Colorado and Kootenai formations to immediately close together and seal the underlying rocks. Therefore, when the structural conditions are favorable there should be a commercial accumulation of oil or gas at the margin of the structure."

South Turner Valley

In the Mercury tract, South Turner

(Continued on Page 58)

Unification Plan for Dominguez Area

Failure of California Operators to Reduce Production Leads to Accumulation of Stocks. Sharkey Bill Chief Topic on Coast

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Mar. 19.—Crude oil production in California continues to average in excess of 500,000 bbls. per day and with the passing of each succeeding week it becomes more evident that producers must effect an additional curtailment in production and refiners reduce the operating status of refineries if the oil industry on the Pacific Coast is to make any kind of a satisfactory showing during the current year. Introduction of the third structure gasoline by major companies has prevented the annual gasoline price war, which had become somewhat of a chronic affliction during the past few years, but at the same time sale of the third grade motor fuel throughout the entire Pacific Slope has substantially reduced sales of the other grades. It is a little too early to determine whether the increased gallonage secured through the medium of this third structure and the stabilized prices of other grades compensates major marketers by permitting them to liquidate current excess production instead of accumulating gasoline stocks during periods of low consumption.

The inability of California producers to reduce state production to economic requirements has resulted in an accumulation of crude and refined oil stocks held in Pacific Coast territory during January, February and March. The current month is only a little more than half over and, while complete figures for March will not be available for another few weeks, if the current trend is maintained it will lead to higher stocks of light oil. If consumption continues at a normal rate stocks of crude and refined oils will probably continue accumulating up until the close of June. Any substantial increase in export shipments would, of course, alleviate the situation and directly affect the amount of excess production.

Sharkey Bill

The Sharkey bill, even though it be enacted at the special election to be held on May 3 cannot possibly become a factor of any great consequence previous to July 1. It is interesting to note in this connection that several Santa Fe Springs operators are attempting to secure an indefinite postponement of the suit involving enforcement of the gas conservation law at Santa Fe Springs. This case was set for trial May 9, six days after the Sharkey bill comes up for election. The indefinite delay requested by Santa Fe Springs operators will eliminate what would possibly be unnecessary work in the event that the Sharkey bill is ratified, because it is the consensus of opinion that the gas conservation law will be temporarily sidetracked. The future status of the gas conservation law depends upon production activities at Kettleman Hills, although this field could be controlled by the Sharkey oil conservation bill.

Opponents and proponents of the Sharkey oil conservation measure have started an aggressive campaign to secure as large a popular vote as possible in the special election May 3. The St. Helens Petroleum Co., a progressive producer and refiner, is the latest company to assume a definite position with respect to this regulatory legislation. Charles Drader, general manager of the company, in a communication to employes of the company, states that "a measure of great importance to the welfare of the California oil industry and to this company is to be voted upon May 3, at a special state election. I refer to the Sharkey oil conservation act which provides for the equitable proration of crude oil production. Under this act, proration of production will be administered by a commission elected by the producers of the five oil districts into which California is already divided, each producer in each district having one vote no matter what the size of his holdings. No program adopted by the commission has any effect until it is approved by the director of natural resources of the State of California. Thus the State retains the veto power which assures the public and every oil producer of fair and equitable treatment. The Sharkey oil conservation act does not involve state regulation, but provides for industrial self-government with the veto power retained by the State. We believe that the Sharkey oil conservation act will greatly assist in re-establishing the oil industry upon a sound basis and that being beneficial to the entire industry will therefore be beneficial to you. I urge you to register immediately and exercise your inalienable rights."

Olmsted's Letter

C. E. Olmsted, vice president and general manager of The Texas Company, issued a letter to employes and stockholders of the company a few days ago in which he advises those concerned that, "on May 3, the date of the presidential primary, there will also be a special state election. On the state ballot proposition No. 1 will be the oil conservation act commonly known as the Sharkey bill. It has always been and is the present policy of The Texas Company to keep out of politics but we do not regard this act as being of a political nature. It is of great importance to the welfare of this company and of the oil industry. The measure is designed to prevent waste, to conserve valuable and irreplaceable natural resources and to apportion the allowable production on a fair and equitable basis among all producers and oil fields. The immediate object of this letter is to direct the necessity of your registering as all previous registrations expired December 31, 1931. You will not be qualified to vote at any election unless you shall have been registered subsequent to January 1, 1932. You are urged to register immediately and to use your best efforts to secure the registration of the members of your family to the end that each may be in a position to cast a favorable vote on the Sharkey oil conservation act."

Unitization

Although unitization of production and development activities has only been effected in one California field, this unification of effort is expected to become of greater importance in California as time goes on. Work of this nature is especially suitable for future work in the Inglewood, Dominguez, Elwood, Ventura Avenue, Lost Hills-Belridge and in the Middle Dome of Kettleman Hills where deep virgin zones are known to exist or are at present undergoing development. Unified development would be greatly enhanced by passage of the Sharkey oil conservation act and this would in turn favorably affect the production of independent producers. Passage of the Sharkey bill would stimulate unification activities for the simple reason that there would be no advantage in a company drilling 10 wells if in conformity with the decision of the commission enforcing the Sharkey bill two wells would produce the established quota. If the commission should proceed to allocate the production of any particular field based on potential production of all members within that field, it would precipitate a drilling campaign in order to determine who could build up the highest potential and therefore be allowed to produce a little more than neighboring producers. It is quite obvious that the expenditure necessary to secure this slight edge would not be justified from an economic standpoint. In other words, if, say for instance, the Inglewood Field, after an economic survey had been conducted, was assigned an allowable production of 25,000 bbls. per day it would not make any substantial difference how many wells were drilled if the field production remained at a pegged figure which bore an equitable pro rata share of the total economic production of the State. It is not the intention of the bill to precipitate drilling and by doing so force smaller producers to suspend production activities because they could not compete with flush areas.

Dominguez Field

During the past two weeks operators in the Dominguez Field of Los Angeles Basin have been formulating tentative plans for unification of production and development work in that field. The outcome of this constructive movement depends entirely upon the lessors involved as producers cannot unify activities without general consent, for obvious reasons. The Dominguez Field presents a beautiful setup for unit development due to its freedom from competitive development up to the present time and the small number of producing companies involved. The field has been developed under normal conditions with wells uniformly spaced and the upper zones carefully protected from infiltration of water and repressured with excess gas from time to time. The Union and Shell control the greater part of the Dominguez Field, while the Associated and Richfield have smaller leases located farther out on the structure. The Union was obliged to resume drilling operations in the Dominguez Field about six months or so ago due to stringent lease requirements and this work naturally precipitated offsetting by both the Shell and the Associated. Several of the wells completed by the Union during this period have been shut in and others have been severely beaned back in order to keep the field production down to within striking distance of the allowable set for this field by the fact-finding committee several months ago. If this field could be unified, this unnecessary drilling would be eliminated to the mutual benefit of both the lessors and producers. As the situation stands at the present time, there is a good possibility that this field will be brought under unit control some time during the next six months. This is especially true if the Sharkey oil conservation bill is enacted as this will, it is believed, furnish sufficient legal protection to enable operators to reduce drilling without being subjected to litigation.

Preliminary plans were formulated several months ago to unify development work in all productive horizons located below the Vaqueros formation in the Elwood Field of Santa Barbara County, but for some reason or other those involved have been unable to reach any general agreement. A drilling moratorium was agreed upon when this plan was submitted for consideration by E. B. Reeser, president of the Barnsdall Oil Co., as it was quite evident at that time that any additional development in the Sespe sand might prevent the reaching of any agreement to unify development and at the same time break the existing price structure. The drilling moratorium involving the Elwood Field expires April 30, 1932, at which time operators may be in a position to resume discussions regarding unification of development or extend the period of the moratorium.

Seal Beach

The Continental Oil Co.'s No. 26 Selover in the Seal Beach Field of Los Angeles Basin blew in during the course of a water shutoff test during the early part of the week and, while it showed an initial daily production of 500 bbls. the flow has been killed in order to open up a little more of the productive formation. No. 25 San Gabriel of the Standard, an offset to the Continental's No. 26 Selover, is rotating ahead at 3,500 feet but will not be in position to make a bid for production as it has another 3,000 feet of hole to make before reaching completion depth. The Associated Oil Co.'s No. 12 De Francis in the Dominguez Field was swabbed in a few days ago flowing 888 bbls. of 29.4 gravity oil per day from 4,667 feet but since the flow has not yet cleaned up, additional work may be undertaken. The Republic Petroleum has acquired the Childs lease recently held by the Shell Oil Co. in the Dominguez Field, and preparations have already been started to drill a deep test. The Shell drilled several deep wells on this 40-acre lease but failed to develop sustained commercial production. The Union is running

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	March 5		February 27			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Diesel and gas oil	.....	.....	.....	.....	.....	606,269
Gasoline	.....	.....	.....	.....	698,745	2,679,617
Foreign exports—						
Crude oil	206,686	29,527	136,386	19,484	1,670,906	1,339,282
Fuel oil	194,507	27,787	180,408	25,773	1,729,708	3,045,185
Diesel and gas oil	71,610	10,230	.....	.....	442,943	706,278
Gasoline	148,608	21,230	21,311	3,044	1,686,229	1,933,490
Kerosene	109,703	15,672	.....	.....	452,170	216,433
Naphtha distillates	.....	.....	.....	.....	41,175	.....
Coastwise-domestic—						
Crude oil	391,426	55,918	263,132	37,590	2,851,844	3,162,903
Fuel oil	316,772	45,253	220,084	31,441	2,917,350	3,198,981
Diesel and gas oil	18,388	2,627	25,061	3,580	368,958	345,780
Gasoline	504,686	72,098	192,824	27,546	2,473,371	2,117,007
Kerosene	5,172	739	.....	.....	33,072	76,002

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Gasoline	.....	.....	.....	.....	68,101	63,975
Lubricants	.....	.....	.....	.....	7,849	11,000
Foreign exports—						
Crude oil	74,866	10,695	.....	.....	249,093	6,010
Fuel oil	.....	.....	61,675	8,811	442,083	63,610
Diesel and gas oil	.....	.....	55,195	7,885	165,657	113,156
Gasoline	14,736	2,105	7,725	1,104	607,815	405,922
Kerosene	.....	.....	.....	.....	185,350	190,412
Lubricants	.....	.....	.....	.....	8,225	.....
Coastwise-domestic—						
Fuel oil	.....	.....	46,140	6,591	464,500	787,958
Diesel and gas oil	.....	.....	19,880	2,840	136,699	5,315
Gasoline	.....	.....	105,546	15,078	674,254	467,199
Kerosene	.....	.....	.....	.....	10,857	16,877

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three strings of tools in the Dominguez Field at the present time and is rigging up No. 29 Callender for future work.

Inglewood

The Inglewood Field of Los Angeles Basin is expected to remain in the spotlight during the next several weeks because of three deep tests being drilled in that area around the edge of the structure. These outposts are being drilled by the Allison Syndicate, Baldwin Oil Co. and the Baldwin Hills Syndicate. Either No. 1 Sentous of the latter or No. 9 Brownmoor of the Baldwin Oil Co. may possibly get commercial production in the lower zones which are not being produced at the present time, although this is more of a possibility than a probability. The Smith Petroleum Co. made a production test of its well No. 9 in the Lawndale Field of Los Angeles Basin a few days ago but the results were not conclusive due to mechanical trouble. The Standard, with four strings of tools in operation in the West Coyote Field, should finish three wells on the Murphy Coyote property in this district some time during the next few weeks. This trio will be followed into production by No. 50 Emery and at a later date by No. 51 Emery, which is expected to be spudded within the next few days. The Ajax Petroleum Co. has temporarily suspended drilling operations in its deep test in the Newport Field of Los Angeles Basin but work is expected to be resumed in the near future. This well, bottomed at 7,260 feet, has been in the Temblor for some time and, while the sand reacts rather favorably, the well has not looked any too hot. It is the present intention to land a string of 6⅝-inch casing and test out some showings encountered at 6,450 feet. If this test fails to result in commercial production the well will be deepened to approximately 7,500 feet and retested before being abandoned. C. H. Shannon and associates are rigging up rotary equipment for a wildcat to be drilled on the Camp Kearney Mesa near San Diego and the bit should begin making hole within the next week.

Kettleman Hills

The North American Oil Consolidated has resumed drilling in No. 1 Elsinore, an outpost in the North Dome of Kettleman Hills, and the bit is at the present time going ahead at 8,740 feet. Water was located in this hole at 8,430 feet, or approximately 75 feet below the shoe of the 6⅝-inch casing. This well recently blew in during a water shutoff but was subsequently killed as the output was cutting approximately 50 per cent water. It is the present intention to deepen this well to approximately 9,250 feet before making a production test. Pending the outcome of work on No. 1 Elsinore, the North American will not do any further work on No. 1 Blauvelt, which was suspended two weeks ago at 9,500 feet. The North Kettleman Oil & Gas Co. is building rig for No. 1 Welch, an outpost in Section 24-21-16, and rotary equipment is expected to be moved in within the next few days. The Petroleum Securities is coming out of No. 1 Burbank with some of the fish which has delayed progress at 9,332 feet but it is not yet known just how much will be recovered with the present hold. The Standard is making preparations to resume drilling in its No. 6-29 V, an offset to No. 1 Burbank of the Petroleum Securities in the Middle Dome of Kettleman Hills. Both of these wells are being watched with extreme interest by operators throughout the State because of the general belief that a new field will be opened up in the Middle Dome if and when water can be excluded from the productive formation.

The General Petroleum has temporarily suspended drilling operations in No. 1 Gerry, a deep test in the South Belridge Field of Kern County, but does not intend to abandon the hole. This well, located in Section 30-28-21, was bottomed at 8,260 feet and has a cement plug at 4,440 feet. This well was still in the brown shale when drilling operations were concluded and had consequently not yet encountered the Temblor which has been found productive at Kettleman Hills and in the North Belridge Field. The Belridge Oil Co. has just passed the 8,012-foot level in its well No. 64, a deep test in the North Belridge Field of Kern County, and, while the strictest secrecy is being maintained, rumors are prevalent that the company has encountered what might possibly be a second producing horizon. As has been stated, however, no definite information is available as to the authenticity of this report. It is needless to say, however, that this well got away from the crew a month or two ago and staged a short gas blowout before being brought under control. Whether this was just a stray gas pocket or the top of another productive horizon in this field is problematical.

Fruitvale

The Western Gulf spudded in three new wells in the Fruitvale Field of Kern County during the current week and will probably begin making hole on another, No. 1 Price Stewart, some time during the next 15 days. This development work by the Western Gulf, after several months of inactivity, has been made necessary because of lease requirements which call for offsetting work in the Fairhaven section of the Fruitvale Field. Additional completions should be chalked up in this field within the next few weeks by Bankline Oil Co., Bluerock Oil Co., Hay Petroleum and Plymouth Oil Co. The Golden Bear Oil Co. has picked up the pay in its well No. 2 in the Round Mountain Field of Kern County at 1,565 feet and a water string is being run in at the present time. This well should be completed some time during the next two weeks. Archie S. Mayes picked up the top of the Vedder zone in his well No. 2 in the Mount Poso Field in Section 36-27-28 but is abandoning the hole at 1,788 as the Vedder zone was barren except for a few spots of heavy oil in a core at 1,735 feet. The Modoc Petroleum Co. is

(Continued on Page 65)

MICHIGAN WELL NEARING PAY; NO COMPLETIONS DURING WEEK

By George A. Whitney

MOUNT PLEASANT, Mich., Mar. 19. No completions were reported from the Michigan territory during the week. The one nearest pay sand is Walter L. McClanahan, Inc.'s No. 4 well, 990 feet from the north line and 330 feet from the west line of the A. G. Struble farm, SW NE SW, Section 10, Greendale Township, Midland County, which is drilling around 3,200 feet and with no bad luck will be brought in the coming week.

McClanahan's No. 1 well, 330 feet from the south line and 990 feet from the west line of the Corning estate, SE SW SW, Section 2, same township, and about a mile north of the Struble farm, and No. 1 test, 330 feet from the north and west lines of the W. S. Root farm, NW NE SW, Section 12, same township, are both at a depth of approximately 2,500 feet, the latter being about 1½ miles east and a half mile north of the Struble well.

The Corning estate and Root tests represent key locations to expansion of the field, in particular to the north and northeast. Either of these tests, if it proves large, will bring about a rush of the drill, as was the case when the wildcat on the Hornick, the discovery well of the East Pool, was found.

The Talbot Oil Co.'s No. 1 State of Michigan Land, NW SW NE, Section 11, Greendale Township, Midland County, which has been delayed for some time with a fishing job in the Marshall formation, has skidded the rig and started a new hole. Same company's No. C1 State, SW SE SE, Section 10, same township, is down around 500 feet. Beatha Jones' No. 1 Jones-Woodruff, NW NW SW, Section 13, same township, is shut down around 1,200 feet.

Mammoth Oil Co.'s No. 1 Bothwell farm, Section 15, Hatton Township, Clare County, is shut down at 4,088 feet. T. K. Buzzard's No. 1 Simms, NE SE and E half NW SE, Section 4, Mount Haley Township, Midland County, is drilling around 1,200 feet.

Mellon-Pollock Oil Co. is fishing at 1,600 feet in No. 3 John Brief, N half SW Section 3, Vernon Township, Isabella County.

SUSPEND DRILLING IN GERMANY

NEW YORK, Mar. 21.—North European Oil Co. has announced the temporary suspension of active drilling operations in Germany, owing to unfavorable economic conditions. The company, which recently acquired additional acreage in Wurtenberg and East Friesia, will restrict its activities in all parts of Germany to geological and geophysical studies, until market conditions show further improvement.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.	T.	R.	Depth	Status—
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9-	2-	15	7,414	suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12-	2-	15	6,238	suspended
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6-	4-	14	2,151	testing
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24-	3-	15	2,700	suspended
Lawndale Pioneers, Inc., No. 1 Peck, Los Angeles Co.	20-	3-	14	6,378	testing
Ranger Pet. Co., No. 1 Watson, Los Angeles Co.	28-	4-	13	3,785	pump 35 B/D
Barcus, W. I., No. 1 Watson, Los Angeles Co.	28-	4-	13	....	grading
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11-	2-	15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27-	2-	10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30-	2-	9	2,250	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30-	2-	12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31-	2-	12	1,215	sd. sh. drilling
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34-	1-	11	4,902	suspended
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6-	2-	11	5,060	recemented
Wardell & Menichini, No. 1 Montebello, Los Angeles Co.	7-	2-	11	rig	rigged up
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24-	1-	13	2,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19-	1-	12	2,015	suspended
Davidson Oil Co., No. 1 Monterey Park, Los Angeles Co.	32-	1-	12	....	location
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26-	1-	17	1,004	suspended
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23-	1-	16	1,460	cleaning out
Marble, Willard, No. 1 Chatsworth, Los Angeles Co.	6-	2-	16	1,395	suspended
Ajax Pet., No. 1 Newport, Orange Co.	21-	6-	10	7,259	to set pipe
Beck, Alfred, No. 1 Corona, Riverside Co.	8-	4-	6	1,110	suspended
Spindletop Oil Co., No. 1 Salton Sea, Riverside Co.	25-	7-	10	3,590	sd. sh. drilling
Duncan, N. I., No. 1 Sagebrush, Riverside Co.	8-	4-	6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25-	1-	2	2,392	redrilling
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-	17-	15	635	sd. sh. drilling
Woods, D. H., No. 1 Salton Sea, Imperial Co.	7-	11-	16	674	sd. sh. drilling
Borderland Oil Co., No. 2 Encinitas, San Diego Co.	12-	13-	4	2,610	to set pipe
South Bay Oil Co., No. 1 Border, San Diego Co.	31-	18-	2	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-	18-	1	1,700	suspended
Oklahoma Oil Corp., No. 1 Palms, San Diego Co.	35-	11-	3	1,501	sd. sh. drilling
Shannon, C. H., No. 1 Kearney, San Diego Co.	14-	15-	3	rig	rigging up

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.	T.	R.	Depth	Status—
Standard, No. 1 Santa Rosa Island, Santa Barbara Co.				....	building road
Barnsdall, No. 1 Los Alamos, Santa Barbara Co.	31-	8-	33	2,961	sd. sh. drilling
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5-	9-	33	8,566	fishing
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2-	7-	35	3,450	suspended
General Pet., No. 4 Goleta, Santa Barbara Co.	10-	4-	29	1,330	plug 730 ft.
General Pet., No. 123 Goleta, Santa Barbara Co.	21-	4-	28	2,030	suspended
General Pet., No. 124 Goleta, Santa Barbara Co.	21-	4-	28	2,053	suspended
General Pet., No. 126 Goleta, Santa Barbara Co.	21-	4-	28	2,047	suspended
General Pet., No. 127 Goleta, Santa Barbara Co.	21-	4-	28	2,050	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21-	4-	28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co	20-	4-	28	2,004	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24-	4-	29	2,099	suspended
Johnson & Strickland, No. 1-A Goleta, Santa Barbara Co.	19-	4-	27	5,392	rd. sd. drilling
The Texas Co., No. 3 Carpinteria, Santa Barbara Co.	34-	4-	25	408	abandoned
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-	10-	35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14-	5-	27	2,345	suspended
Pacific Finance Co., No. 1 Carpinteria, Santa Barbara Co.	tideland			2,011	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19-	4-	24	2,080	suspended
Bell, H. H., No. 1 South Mountain, Ventura Co.	22-	3-	21	2,484	sd. sh. drilling
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15-	4-	21	2,591	suspended
Union, No. 1 Calumet, Ventura Co.	3-	3-	19	....	location
Sycamore Oil Co., No. 1 Conejo, Ventura Co.	24-	1-	20	1,500	br. sh. drilling
American Oil Co. No. 1 Conejo, Ventura Co.	33-	2-	20	1,590	cleaning out
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-	27-	22	6,545	sd. sh. drilling
General Pet., No. 1 Buttonwillow, Kern Co.	6-	28-	23	2,615	prod. test
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-	29-	24	7,000	cleaning out
Millham Expl. Co., No. 11 Buttonwillow, Kern Co.	8-	28-	22	2,501	cemented
Burman, T. H., No. 1 McKittrick, Kern Co.	22-	29-	21	3,450	sd. sh. drilling
Weiport Oil Co., No. 8 McKittrick, Kern Co.	26-	29-	21	1,298	cemented
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	26-	31-	24	5,380	suspended
General Pet., No. 1 Belridge, Kern Co.	30-	28-	21	8,260	suspended
Wallace, K. C., No. 1 Belridge, Kern Co.	32-	29-	21	4,222	suspended
Rio Cal Pet., No. 1 Shale, Kern Co.	2-	27-	18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-	30-	28	3,850	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-	30-	29	5,910	suspended
Fullerton Oil Co., No. 4 Semitropic, Kern Co.	9-	28-	24	1,102	sd. sh. drilling
Cumberland Oil Co., No. 2 Devil's Den, Kern Co.	17-	26-	18	3,225	suspended
Totem Oil Co., No. 1 Devil's Den, Kern Co.	29-	25-	19	rig	rigged up
Regina Oil Corp., No. 1 Mojave, Kern Co.	26-	10-	14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11-	9-	15	4,000	suspended
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-	11-	9	1,130	hd. sd. drilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-	10-	10	1,030	redrilling
Barnsdall Oil Co., No. 1 Tejon, Kern Co.	15-	11-	20	4,601	sd. sh. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-	11-	19	6,025	suspended
Descanso Oil Co., No. 1 Tejon, Kern Co.	31-	11-	19	2,614	hd. sd. drilling
Associated, No. 1 Jacalitos, Fresno Co.	22-	21-	15	6,197	suspended
Kingsburg Expl. Co., No. 1 Kingsburg, Fresno Co.	30-	16-	23	2,430	cleaning out
Kent & McDonald, No. 1 Carrizo, San Luis Obispo Co.	3-	32-	22	2,630	suspended
Tres-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-	31-	22	2,450	suspended
Indian Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	26-	31-	12	3,380	suspended
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	6-	31-	13	3,070	redrilling
Paso Robles Oil Co., No. 1 Edna, San Luis Obispo Co.	27-	27-	11	4,160	suspended
Emerich Oil Co., No. 1 Atascadero, San Luis Obispo Co.	13-	28-	12	1,805	sd. sh. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	1-	29-	12	1,650	suspended
Pacific Inland, well No. 1, Monterey Co.	19-	23-	15	2,280	suspended
Brown, W. F., No. 1 Parkfield, Monterey Co.	15-	23-	14	1,051	cleaning out
Guess, E. B., No. 1 Corcoran, Kings Co.	7-	21-	21	6,197	suspended
Niel, W. B., No. 1 Dudley Ridge, Kings Co.	32-	22-	20	rig	rigged up
Guess, E. B., No. 1 Dudley Ridge, Kings Co.	12-	22-	22	2,210	suspended
Kettleman National Oil Co., No. 1 Dudley Ridge, Kings Co.	18-	22-	19	1,100	sd. sh. drilling
Irma Investment Co., No. 2 Dudley Ridge, Kings Co.	7-	23-	20	1,224	cleaning out
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-	23-	20	1,125	cleaning out
Valley Expl. Co., No. 1 Dudley Ridge, Kings Co.	12-	23-	19	1,302	cemented
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-	23-	17	5,894	suspended
Seymour, L. W., No. 1 Avenal, Kings Co.	10-	23-	16	1,148	suspended
Tulare Basin Gas Co., well No. 1, Kings Co.	2-	23-	19	1,193	5,000M gas
Magee & Stone, No. 1 Alpaugh, Kings Co.	34-	24-	22	711	sd. sh. drilling
Tulaco Oil Co., No. 1 Corcoran, Tulare Co.	20-	22-	22	rig	suspended
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-	24-	27	2,200	redrilling
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-	17-	24	2,092	suspended
Gravity Expl. Co., No. 1 Alpaugh, Tulare Co.	11-	24-	23	rig	suspended
Ellis & Sanford, No. 1 Tulare Lake, Tulare Co.	20-	24-	23	1,920	plug 1,487 ft.
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-	12-	17	7,694	suspended
Napa Oil Co., No. 1 Griffith, Napa Co.	7-	8-	3	2,848	cemented
Orinda Pet., well No. 1, Contra Costa Co.	32-	1-	3	2,120	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-	15-	4	1,040	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3-	2-	10	4,750	suspended
Hilderbrandt, R., No. 1 Crows Landing, Stanislaus Co.	36-	6-	7	1,130	suspended
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-	23-	3	3,040	suspended
Pacific Northern Oil Co., No. 1 Guinda, Yolo Co.	23-	12-	3	2,005	cleaning out

Expect Play in Three Lima Counties

Seneca, Western Lucas and Wyandot Due for Development. Central Ohio Has Increased Completions. Indiana, Illinois and Kentucky Operations

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Mar. 21.—No completions were reported from the old Lima Field of northwestern Ohio, although several wells are under way in various parts of the field. There are three counties in the field at this time sure to get a good play when weather conditions are more favorable. They are the Tiffin Field in Seneca County, Wyandot County and western Lucas County, which lies west of Toledo, where some fair-sized producers have been found in the past in the vicinity of Montclova, and in both Montclova and Providence Townships of this county.

The well on the Getuldig farm, drilled by J. H. Murphy & Sons in their No. 3 well, Section 11, Hopewell Township, Seneca County, drilled in recently with an initial production of better than 100 bbls., is an incentive for active development in the near future. Four wells are now drilling in this township and others are being planned to start in the near future.

With pipe line service the Wyandot County fields should show a drilling spurt in a short time, and while the wells completed there are not large they show a good volume of gas that can be disposed of. This county in the early days of the development of the Trenton Rock Field had some very good wells but they did not show the staying qualities in some of the other areas of the Lima Field, and no drilling was done for many years. Things have changed and this area is being looked upon by several operators that expect to do a lot of test work the coming summer. Connections are being made with the new production of both oil and gas in the county.

CENTRAL OHIO

Approximately a dozen wells were reported completed in the Central Ohio Field, which is quite an improvement over the past several weeks, but the weather may slow down development work to some extent.

In Ashland County the Commonwealth Gas Corp. drilled in a dry hole on the Oratta Bennett farm, Section 31, Jackson Township. No sand was found.

Medina County reports four completions, the best producer of the lot being Preston Oil Co.'s No. 2-1,512 M. H. Packard farm, Lot 27, Chatham Township, with an initial of 48 bbls. from 396 to 446 feet. Oko Oil & Gas Co.'s No. 24 Henry Essig farm, Lot 3, same township, rated good for 15 bbls., from 332-90 feet. Edson Sons Co.'s No. 33 George W. Packard farm, Lot 4, failed to find any oil as the Berea sand was not there and this company had the same results in its No. 37 Marcus A. Frank farm, Lot 20.

In Lorain County, Grafton Township, Ramage & Willis have a rig in for No. 3 Frederick Armbruster farm, Lot 89.

In Holmes County the Paint Valley Oil & Gas Co. has a showing of both oil and gas on the Andrew Johnson farm, Section 20, Monroe Township, at from 670-80 feet, the gas being much the better showing, and it is listed as a gas producer.

In Coshocton County, Pike Township, the Whittmer-McClay concern is drilling on the R. L. Rine farm, Section 6.

In Muskingum County, Union Township, the Atha Co. is drilling on the Jacob S. Morrison farm, Section 15.

Athens County had one completion, a dry hole drilled by the Ohio Oil & Gas Co., in No. 5 on the M. Jones farm, Section 24, Alexander Township, in the Berea sand at 1,330 feet.

Stark County

In Stark County the Ohio Fuel Gas Co. has a gas well in No. 1-5,598 on the Balser Race farm, Section 12, Jackson Township, in the Clinton lime formation. Same company also has a gas well in No. 2-5,608 on the Henry W. Stockert farm, Section 15, same township, and in the same formation. F. A. Brendall and others have a gas well in No. 1 J. W. Hines farm, Section 9, same township, at a total depth of 4,322 feet, and are drilling No. 1 J. O. Young farm, Section 6, same township.

In Fairfield County, Pleasants Township, the City Natural Gas Works found a dry hole in No. 3 on the Charles W. Moyer farm, Section 13.

In Guernsey County, Cambridge Township, Charles Smith has an oil showing in the Berea sand from 1,265-71 feet on the William F. and Anna M. Dixon farm, Section 10.

Washmuth & Callahan have a rig on the George A. Neptune farm, Section 22, Somerset Township, Belmont County.

In Perry County, Pike Township, Earnest English and others found a dry hole on the M. R. McTeague farm, Section 12, in the Clinton from 3,480 to 3,545 feet. Atha Oil & Gas Co.'s test on the E. M. Kroft farm, Section 9, Madison Township, same county, is also a duster in the Clinton from 3,134 to 3,234 feet. Shenker and others are moving on the Elmer Vansickle farm, Section 5, Reading Township, same county, and the Marietta Development Co. is moving in a string of tools on the William E. Kitchen farm, Section 2, Monday Creek Township, same county.

F. Calderwood is rigging up to drill deeper his No. 2 Neaze farm, Section 25, Sutton Township, Meigs County. Simpson & Rice are reported at a depth around 400 feet on the Rena E. Karr farm, Section 11, same township.

INDIANA

Compiled by Paul F. Simpson, state gas supervisor, Department of Conservation, Division of Geology, Indianapolis, Ind.:

Crawford County—C. P. Erni and others have started a test on the Arthur Beasley farm in the SW of Section 32, Sterling Township.

Daviess County—Ben D. Ruble is drilling No. 2 Bernard Gilloogy in the NW of Section 34, Harrison Township.

Fountain County—Fountain Oil & Gas Co. has drilled more than 1,700 feet in No. 1 Gants in the SE of Section 28, Troy Township, reporting a showing in the Trenton.

Franklin County—The American Industrial Gas Corp. is drilling in the Shakepee formation on the John Beneker farm in the SE of Section 27, Highland Township. The same company plugged its test on the Mike Kunz lease in the NW of Section 16, Brookville Township, after having gone 10 feet into the St. Peter sandstone.

Gibson County—No. 1 B. J. Fields, in the NE of Section 10, Patoka Township, was abandoned by the United Oil Co. The Wabash Public Service Corp. is drilling a second well on the G. B. Allen farm in the NE of Section 22, Columbia Township. No. 3 Agnes Haskins, in the SE of Section 18, Washington Township, has been started by the Gib-Van Oil Co. In the NE of the same section, the Big Four Oil & Gas Co. completed No. 2 Lottie Hope, which produced 40 bbls. natural.

Hancock County—The Knightstown Natural Gas Co. is near the completion of another well on the Ramsey farm, north of Charlottsville.

Hendricks County—The T. A. Reitzel test drilled by the French Development

(Continued on Page 65)

May Extend Washington, Ohio, Pool

Leasing in Progress in Monroe County and Across River Near Sistersville, W. Va. Several New Tests Located

By Staff Correspondent

PITTSBURGH, Pa., Mar. 21.—In the three districts of the lower eastern fields, during the past week, five new producers were completed, with an initial production of only 24 bbls., and three gas wells were brought in. In addition three dry holes were reported. The total completed work continues small and has been retarded by the belated severe winter.

Washington County, Ohio, still continues as the high point of interest in the eastern fields, with attention centered on the William Harris test on the Crago farm at the head of Cady Run in Grandview Township. The extreme cold weather and the intermittent flows of the well have so far prevented casing off the Injun, Squaw and Berea sands, but casing is in readiness to proceed at a suitable moment. It is reported that this test is making an average of about 50 bbls. a day from the third Warren sand, 2,916 feet. In addition to local operators, outside interests have been represented in this new possibility of a deep pool underlying this and adjoining counties, and leasing has extended over into Monroe County and across the river in the vicinity of Sistersville. Locations have been made for tests on the following farms by local operators: On the Annie E. Wiley farm of 22 acres, Section 32, Grandview Township; D. W. Frye farm, 60 acres, Section 32, Grandview Township; Francis Iceland farm, Section 33, Grandview Township; John Seemer farm, Independence Township; E. J. Mildren is preparing to make a deep test as his No. 5 on his own property in Grandview Township.

Completions

Four new producers with an initial production of 17 bbls. were completed in Southeast Ohio. In addition three dry holes were reported. One of the producers will probably make a very fair well. It was a test of the Central Ohio division of the Pure Oil Co. on the Pius Snyder farm, NW Section 11, Reading Township, Perry County. It was completed in the Clinton sand at a depth of 3,075 feet and produced, natural, 5 bbls. the first 14 hours with a showing of 300,000 feet of gas a day. In the same county, the Atha Oil Co. finished its test on the Samuel Frazier farm, SE Section 9, Madison Township, by drilling through the Clinton sand, which was found dry.

In Athens County the Standard Natural Gas Co. completed a test on the J. R. Young farm, near Hamley Run, Section 12, Waterloo Township. It is producing about 4 bbls. a day after shot from the Grit at a depth of 1,034 feet. In Medina County E. R. Edson & Son Co. continued its success on the No. 1 George W. Packard lease, Lot 4, Section 13, Chatham Township, with No. 34. It went to a depth of 374 feet and is showing for about 5 bbls. a day. On Lot 2, Section 16, same township, the same company drilled its No. 36 on the Morris A. and Eva Franks lease to a depth of 475 feet. It proved a fault in the shallow sand and was dry.

In Holmes County the Lydic Oil & Gas Co. and others completed a test on the John Johnson farm, Lot 20, Monroe Township. It was drilled in the Berea sand at a depth of 683 feet and is showing for a 2 or 3-bbl. pumper after shot. In Morgan County, E. S. Keppel and others drilled a test on the D. T. Orndoff farm, Section 41, Windsor Township, to 1,240 feet, the Big Injun sand, which proved dry. In Marion Township, Section 13, W. S. Harris is drilling No. 3 on the F. A. Gifford farm.

Other sections of Southeast Ohio remain very quiet with no additional drilling and no new locations except those reported in the center of interest in Washington County.

WEST VIRGINIA

One new oil producer and three gas wells were completed in West Virginia. On the waters of Sliding Hill Creek, the Berea Oil & Gas Corp. completed a second test on the Jackson Coal & Mining Co. lease in Waggoner district, Mason County. It was completed through the Second Cow Run sand and is starting off at about 7 bbls. a day. It is about 180 feet northwest of the same company's No. 1 on that lease.

In Boone County, C. P. Jones completed a second test on the J. Albert Covert farm in Washington district. It is a very light gas well at a depth of 1,795 feet and has been plugged. In Calhoun County, Ed Hess and others completed No. 4 on the John Evans farm in Lee district in the Injun sand at a depth of 2,263 feet. It will make a small gas well.

In Roane County E. R. Lester and others completed their test on the F. H. Bee farm in Curtis district and have a very fair gas well in the Salt sand at a depth of 1,786 feet. The test shows a volume in excess of 2,000,000 feet a day in the 6⅝-inch casing.

Drilling in West Virginia

In Jackson County, G. G. Griffin and others are drilling on the D. E. Dole farm in Ravenswood district and have reached 2,025 feet and will soon be in the sand. In Cabell County the Madison Gas Co. is now rigging up on the Era Taylor farm in Guyandotte district, and in the same district Wilson and Mowery have rigged up for a second test on the Hans-Watts Realty Co. lease.

In Wayne County A. F. Black, trustee, has reached a depth of 3,250 feet

(Continued on Page 58)

Personal Paragraphs About Oil Men

Rex Hamacher of the Reed Roller Bit Company, Houston, Tex., was in Tulsa last week.

* * *

Sir Henri W. A. Deterding, K.B.E., is spending a brief holiday at Bad Piestany, Czecho-Slovakia.

* * *

C. P. Parsons, Halliburton Oil Well Cementing Company, Duncan, Okla., made a hurried trip to Tulsa recently.

* * *

Bartlett Gayle has returned from Sumatra, Dutch East Indies, and is now with the Carter Oil Company in Tulsa.

* * *

E. J. Maust, engineer, The Dorr Company, has been making a tour of the Mid-Continent oil fields in the interest of his company. He was in Oklahoma last week.

* * *

Harry W. Schuetz, of the Colona division of the Pittsburgh Screw & Bolt Company, Pittsburgh, Pa., is on a trip to the Pacific Coast fields. He expects to reach the Mid-Continent about April 1.

* * *

W. J. Filer, vice president of Shell Eastern Petroleum Products, Inc., New England marketing subsidiary of Royal Dutch-Shell, is back in his New York office following an attack of the grippe.

* * *

Joseph Boundy is visiting in Casper, Wyo., with his family for a short time before returning to his position with the Pan American Petroleum & Transport Company on the Island of Aruba, Dutch West Indies.

* * *

Bruce Sullivan, of Billings, Mont., was in Casper, Wyo., on his way to Denver, Colo. Mr. Sullivan is president of the Ideal Oil & Gas Company which has taken over the Spring Creek structure in northern Wyoming.

* * *

W. W. Oswald, who resigned from the board of the Anglo-American Oil Company, Ltd., shortly after re-election at the general meeting of the company in May, 1929, has been reappointed to the board in an advisory capacity.

* * *

Harvey Stone, who has been with the Companhia de Petroleo de Angola, a subsidiary of the Sinclair Consolidated Oil Corporation, in Loanda, Angola, Portuguese West Africa, has recently returned to the United States.

* * *

William C. McDuffie, receiver in equity for the Richfield Oil Company, and chairman of the board of the Pacific Western Oil Company, is expected back in Los Angeles, Calif., during the week following a business trip to New York.

* * *

Dr. John D. Clark, Cheyenne, Wyo., formerly president of Midwest Refining Company, and vice president of the Standard Oil Company of Indiana, will deliver the commencement address at Denver University, Denver, Colo., June 2.

* * *

P. W. Hennessy, superintendent of the northern division of the Illinois Pipe Line Company in the Rocky Mountain division, has returned to Casper, Wyo., headquarters after having been called to Cheyenne by the death of Mrs. Hennessy's mother.

* * *

W. S. Ackerman, a member of the Associated Oil Company's transportation department, with offices at the headquarters of the company in San Francisco, Calif., is recuperating from an operation at the St. Francis Hospital and expects to be back on the job on or about April 11.

* * *

Carl Lauck, of Fisher & Lauck, independent oil producers with headquarters in Wichita, Kans., is expected to return from a winter's trip to Florida. Mr. Lauck and a party left Wichita more than two months ago by motor car to visit Washington and other eastern and southeastern cities.

H. E. Lemar of Tulsa is in Southwest Texas looking over that country.

* * *

L. M. Oles, division geologist with the Prairie Oil & Gas Company at Amarillo, Tex., is spending a few days in Oklahoma.

* * *

Bloss Randall of Onondaga, Ontario, is spending some weeks in Petrolia, recovering from injuries received while drilling in Brant County, Ontario.

* * *

R. A. Waltz, with the Stanolind Oil & Gas Company at Fort Worth, Tex., has been transferred to the Tulsa office in charge of the material department.

* * *

Lee Yealey, superintendent of the northern Montana district for the Ohio Oil Company, with headquarters at Shelby, Mont., has returned from Banff, Alberta, where he was one of the entrants in the trapshooting events at the annual winter sports carnival, winning three cups.

Men of the Industry

Angus McLeod

Angus McLeod, chief geologist of the Shell Petroleum Corporation division which includes Texas, New Mexico, Louisiana, Arkansas, Mississippi and other states in the South, with headquarters in Dallas, Tex., recently was elected president of the Dallas Petroleum Geologists. He was born in Ripley, Ontario, Canada, receiving his education in city schools there, then attending the University of Toronto from which he graduated with an A.B. in geology. He later took three years' graduate work at the University of Chicago, receiving his Ph.D. in 1917.

After completing his school work in Chicago, Mr. McLeod entered the service of the Shell Petroleum Corporation, working out of the Tulsa headquarters and in Kansas. In 1918 he was transferred to the Texas and Louisiana district. Soon afterward he joined Harrison & Eaton, consulting geologists. In 1920 he rejoined the Shell organization, and was made division geologist of the company with headquarters in Shreveport, La. The company moved the division offices from Shreveport to Dallas in 1925.

In 1929 Mr. McLeod went to The Hague and London on a business and honeymoon trip, traveling in France, Italy, Germany and Holland. Handball affords him favorite recreation.

E. E. Overton, bulk sales manager of Shell Eastern Petroleum Production, has returned to New York from a week's trip through Pittsburgh, Erie, Buffalo and Rochester.

* * *

Clifton R. Swarts, consulting petroleum engineer, Tulsa, has been confined to his home for a few days with a case of ptomaine poisoning, but is recovering and will be out again soon.

* * *

J. S. Tritle, vice president and general manager of the Westinghouse Electric & Manufacturing Company, Kansas City, Mo., is spending some time in Dallas on company business.

* * *

David G. Hawthorne, petroleum engineer, Barnsdall Oil Company, Tulsa, was operated on for appendicitis at Morningside Hospital, Tulsa, and is reported getting along satisfactorily.

* * *

H. V. K. Tompkins, formerly with the Gulf Oil Company in Mexico and subsequently at Houston, Tex., is now associated with George F. Getty, Inc., of California, in an executive capacity.

* * *

Frank L. Walton, manager of the bunker fuel oil department of the Asiatic Petroleum Corporation, subsidiary of the Royal Dutch-Shell, has sailed for Bermuda, accompanied by his wife, to spend an Easter vacation there.

* * *

Eugene L. Green, Jr., of Chandler, Tex., has been appointed by the State Railroad Commission to be supervisor of the oil and gas division and will be located in the Panhandle district. He has been with the Gulf Production Company.

* * *

Walker S. Clute has resigned from the U. S. Geological Survey, Tulsa, to accept a position as petroleum engineer with the Tax Research Bureau of California, effective March 15. This department is under the State Board of Equalization and Mr. Clute's office will be in Sacramento, Calif.

* * *

Justin Enloe has been transferred from the Kansas City, Mo., division to the Tulsa division of the marketing department of the Phillips Petroleum Company with headquarters in Tulsa. Mr. Enloe was formerly connected with the refined oil division of the Shell Petroleum Corporation at Tulsa.

* * *

C. R. Wagner, chief chemist of Pure Oil Company, is on an inspection tour of the company's plants in the South. He will visit Muskogee, Tulsa, Ardmore, Okla., Smith's Bluff, Tex., and New Orleans, La., where he will attend the American Chemical Society sessions March 28 29 and 30.

* * *

Percy Meyer, B.Sc.,A.I.C., former honorary secretary of the Persian branch of the Institute of Petroleum Technologists, with headquarters at Abadan, has joined the chemical staff of British Controlled Oilfields, Ltd. Mr. Meyer will be stationed in Trinidad where he will supervise the operations of the chemical department of the company.

* * *

Ed W. Owen, geologist and southwestern representative of Wentz Oil Company, was elected president of the San Antonio, Tex., Geological Society at the annual meeting held in Corpus Christi, Tex. Other officers elected were Olin G. Bell, Humble Oil & Refining Company, vice president; Charles A. Stewart, United Production Company, secretary and treasurer, San Antonio.

* * *

Announcement has been made of the appointment of Dr. B. B. Wescott, research department, the Gulf Companies, Pittsburgh, Pa., to membership on the Committee on Corrosion of Oil Field Equipment of the American Petroleum Institute's Division of Production. Walter F. Rogers, also of the research department, of the Gulf Production Company, Houston, Tex., has been named alternate to Doctor Wescott.

Glen Rose Possibilities in Zwolle Area

Deep Sand Gives Promise Over a Large Area and so Little of It Has Been Tested That It Remains a Standing Invitation

By H. D. Easton
Geologist, Shreveport, La.

A very honeycombed oolitic lime carrying oil was found in R. L. Gay, trustee's No. 1-A Long Bell Lumber Co. in Section 10-8-13, about 4½ miles north of the present Zwolle marl-chalk rock producing area in Sabine Parish, Louisiana. On February 17, R. L. Gay, trustee, cored 14 feet of oil sand with a recovery of but 6 feet, the remaining 8 feet being soft material that was not picked up by the core barrel. All of the core recovered contains oil and it is believed that this will make a good well.

This oolitic lime was cored from 4,775 to 4,789 feet, and is in the Glen Rose portion of the Trinity. The Glen Rose was found at about 4,204 feet (positively identified at 4,280 feet) but it has not given any of the red beds common to the formation farther north. It has been cored all the way and consists of hard gray lime and dark (sometimes greenish) shale. No anhydrite has been found.

The well has an elevation of 265.4 feet and has been drilled with no casing other than 52 feet of 12½-inch. About 1,000 feet of hole is to be reamed and then casing set on the top of this oil sand. As this work is being done, there is a great deal of speculation as to the composition of the deeper portion of the Glen Rose and the lower Trinity, and especially as to the question of the presence or absence of the anhydrite series.

Additional interest in the deep possibilities of the whole Zwolle region is due to another well drilling by the Loring Oil Co. on the south side of the Zwolle marl-chalk rock production, in Section 15-7-12, which well, except for the fact that it found the top of the marl deeper than Gay's well, is checking almost exactly throughout the upper Cretaceous and on into the lower Cretaceous far enough to lead to the belief that this close comparison will continue through the Glen Rose and will reach this oolitic bed at approximately 5,360 feet.

Glen Rose Fields in Louisiana

There are several important fields, scattered over the North Louisiana uplift, producing from the Glen Rose, the pay sand being oolitic lime just beneath the anhydrite. These are chiefly gas fields (wherein the gas carries a very high gallonage of gasoline per 1,000,000 feet) but some high gravity oil is found. The accompanying sketch shows a north-south section of the anhydrite series of the Glen Rose through the Sabine uplift portion of the North Louisiana uplift. This includes the fields now producing (Rodessa, Pine Island, Bellevue) at depths from the greatest to the shallowest—from 5,600 feet to 1,800 feet. Bull Bayou (Naborton) has no production from this zone but has established its presence to some extent, and the same is true of Homer.

Other fields which have some of this Glen Rose production are found on the Monroe uplift portion of the North Louisiana uplift; on the northeast extension of the Shreveport uplift; and in the Bethany Field or southwest side of the Shreveport uplift.

This anhydrite zone is the middle one of three portions of the Glen Rose, the upper and lower members being red beds. The anhydrite zone has a varying composition in different areas, being layers of anhydrite, limestone and shale. Dugald Gordon has pointed out[1] that there is a close comparison in both thickness and layers between the sections in the Richland and the Bethany gas fields:

	Richland	Bethany
Anhydrite	28	5
Shale and limestone	155	248
Anhydrite	196	238
Limestone	60	67
Anhydrite	40	3
Total	479	561

The anhydrite section in the Rodessa gas field (where its production is the deepest) is thicker and more broken than in other places. One well logs it as follows:

	Feet
Anhydrite	72
Anhydrite and lime	41
Anhydrite and shale	76
Anhydrite and lime	69
Anhydrite	126
Lime	14
Anhydrite	121
Lime and shale	53
Anhydrite	63
Shale and lime	108
Anhydrite—some shale	25
Total anhydrite series	768
Oolitic limestone—gas sand	20

It is not my intention to discuss this Glen Rose formation in detail. I will not go into the matter of production, drilling depths, etc., although this subject is one that merits close attention. Only enough is given herein to enable one to see the questions now brought up by the cored sections of the Glen Rose at Zwolle. Some references are attached to this paper wherein authorities have gone into details concerning these other fields. Those interested in this problem would do well to read these references.

Turning to Gay's well, we have seen the Glen Rose formation of the Trinity cored from 4,204 feet to its present depth of 4,789 feet without finding any red beds or anhydrite. There is no question among paleontologists as to the age, diagnostic forams of positive nature having been found.

Logs Check Closely

The Loring Oil Co.'s test, No. 18 Bowman-Hicks Lumber Co., is about 15 miles south of the Gay well. Aside from the fact that it had to drill 586 feet deeper to reach the top of the Zwolle marl (a subsea of 2,218 feet against Gay's 1,632 feet), its log is checking very closely with Gay's through the upper Cretaceous beds and far enough into the lower Cretaceous to expect continuation of this relation on deeper. The Loring well has not reached the Glen Rose yet but should pick it up at about 4,770 feet and get the oolitic lime about 5,360 feet. Should this work out in this manner and both wells produce, then it would be a reasonable speculation that each is on a flank of the Zwolle structure which could find this pay throughout a north-south width much greater than that now producing from the marl-chalk zone, and for an east-west length of greater extent than the present 20 miles of shallow production.

Speculation as to the presence or absence of anhydrite leads to the possibility that it is not present at all this far south (as I predict) or that it lies at greater depth than has been drilled. In the Pleasant Hill area, a depth of 5,063 feet, found no anhydrite zone other than 1 foot in thickness. This suggests that the zone has thinned southward and is not to be found in any deeper drilling done in the Zwolle area. The oolitic zone found in Gay's well might represent the same one found beneath the anhydrite zone in the fields nearer Shreveport—this I believe to be the case.

If the anhydrite zone lies beneath Gay's present depth, then there is the question as to how much deeper the well must go to reach it and go through it. The absence of any red beds in Gay's well tends to show a different nature of the Glen Rose, but if the anhydrite zone is found, then it should call for several hundred feet additional drilling as may be seen by the following:

THICKNESS OF ANHYDRITE ZONE

	Feet
Bellevue	500
Bethany	550
Bull Bayou	600
Cotton Valley	500
Homer	500
Pine Island	450
Richland	450
Rodessa	750
Sugar Creek	550

Untested Deep Zones Inviting

Whenever a producing territory remains untested in the deeper horizons it offers much that is possible. Although it is equally true that practically all of the vast North Louisiana uplift remains almost wholly unprospected in the Trinity and merits much comparatively deep drilling, this one spot on its south flank is being watched with much interest.

Objection is made that the Gay well does not have any true body of quartz sand and that limestone reservoirs are notoriously irregular and often quite independent of structure. However, we do have considerable oil production and much gas from limestones and chalks. But oolitic lime is more nearly like a true sand and is proven as a good reservoir. It is well to note that the Hobbs oil field of New Mexico has its main reservoir consisting of about 200 feet of porous, light colored limestone. Oil is found in salt dome cap material, in serpentine, in dolomite, in anhydrite, in shale, in oolitic beds, in caverns as well as in true sands. Perhaps next to a true sand, a loose oolitic bed is to be desired.

Conclusion

This is the farthest south the Glen Rose has been found but it seems probable that other wells south of the Zwolle production went nearly to it.

The possibilities over a large area are apparent, nor would this be deep enough to be called truly deep drilling. Unlike the drilling in Paleozoic areas, this locality presents softer beds and lower costs.

The speculation that the Loring test will find this oolitic sand at 5,360 feet will be watched with a full understanding as to what it would mean should a well be made there—the whole vast area between, and for a long distance east and west, would become most inviting. Also the area between Gay's well and the Pleasant Hill Field would offer great possibilities.

[1] A.A.P.G. Vol. 15, No. 8, August, 1931.

SEEK TO INCREASE RECOVERY FROM REPRESSURED OIL SANDS

By Paul A. Elliott

ANN ARBOR, Mich., Mar. 19.—The recovery of as much as 50 per cent of the crude oil in a given producing horizon, an important advance in the solution of one of the greatest problems of the petroleum industry, is expected to result from experiments of University of Michigan chemists, results of which were announced here today.

Prof. F. E. Bartell and Dr. F. L. Miller of the University of Michigan chemistry laboratories have determined that certain alkaline salt solutions, if used instead of pure water to flood oil producing sands, will greatly increase and perhaps double the present average recovery of about 25 per cent.

The Michigan scientists have discovered a method for determining the degree of wetting solids by liquids. By this means the degree of adhesion of different oils for sand has been determined. Experiments proved that this degree of adhesion is very different for different types and grades of crude oil, as also is the degree of wetting of different aqueous solutions.

Their findings have made possible the selection of water solutions which will function most efficiently as driving agents to bring the oil out of the sand.

Their results indicate that neither the surface tension values of the liquids, nor the interfacial tension values of the liquid-liquid system are the dominant factors, but rather that the most effective of the displacing agents appears to be those that alter the aqueous solution—silica interface either through a high degree of adsorption or through chemical reaction at the interface.

More Effective Than Pure Water

It was recognized by the investigators that water has, as a rule, been comparatively ineffectual in actual oil field operations. They also recognized that certain aqueous solutions are more effective than pure water in removing oil from sand.

Most commonly a solution of sodium carbonate, or soda ash, has been used in attempts to increase the percentage of recovery but without marked success. Only the salts of strong bases and weak acids seem to be effective as flooding agents, acidic salts or neutral salts not proving suitable.

Several theories have been studied and tested by the University of Michigan scientists in preparation for their present report, some results of which have been published in the March issue of Industrial and Engineering Chemistry, a professional journal.

One theory is that the oil is displaced from the sand because of the differential capillary effect, that is, the higher surface tension of water for silica as compared with oil. It is held that this is not always true as many different salts will increase the surface tension, yet only a few are efficient as flooding agents. The increased tension also was found to be slight.

A second theory is that the displacement is due to chemical reaction, that is, to the attraction between silica and hydrogen ions forming a layer of siloxyl radicals acidic in character with one free bond which will unite with some other substance.

A third theory is that the removal is due to a rearrangement of interfacial-tension relations between water, oil and silica.

Doctors Bartell and Miller believe that the effective removal of greater quantities of resident crude oil is brought about by a combination of two factors, namely: chemical combination and interfacial tension.

The maximum displacement pressure of oil by different aqueous solutions was tested. Both crude oil and benzene were used with various solutions of salt ranging from .1 to 10 per cent by weight. Interfacial tension was recorded in each instance.

Conclusions

Conclusions reached were as follows: First, that no definite relationship between the change in pressure of displacement and the change in the liquid-liquid interfacial tension values can be found; and second, that the most effective dis-

(Continued on Page 68)

Natural Gas Industry Developments

TO TEST MICHIGAN WELLS BEFORE LAYING LINES

SAGINAW, Mich., Mar. 21.—Officials of the Consumers' Power Co., announce that the natural gas reserves in the Broomfield area of Isabella County will be the subject of new tests to determine whether they justify development of a source of supply for Saginaw and Bay City. The company plans, the officials said, to start the use of natural gas from the Broomfield area as fuel for one battery of boilers at the Zilwaukee (Saginaw County) electric power generating plant. This, they asserted, will furnish a clear demonstration of whether the field has sufficient reserves. It is estimated that four to six months will be required for a satisfactory test, which will be begun as soon as necessary equipment can be installed.

The company plans to use existing pipe lines from the field to Midland, which it is now supplying with natural gas, and from Midland to Zilwaukee to bring in the gas.

The Isabella Development Co., which supplies the gas to the Consumers at 15 cents per 1,000 feet and controls several producing wells in the Broomfield area, west of Mount Pleasant, has made a contract with the Consumers company to proceed immediately with practical tests. The tests are to determine whether there exists, as engineers and geologists assert, a reserve of at least 9,000,000 to 10,000,000 feet of gas in the Broomfield area or whether the reserves are too limited to supply the Saginaw Valley cities.

The announcement, authorized by Charles W. Tippy, vice president and general manager of the Consumers' Power Co., is of interest in this section which has had no outlet for its natural gas other than that furnished for the negligible amount of gas used in Clare, Rosebush, Mount Pleasant and Midland—not enough to supply a test as to the durability of the supplying wells. It is also important to Lansing, Grand Rapids, Muskegon and other cities that have shown interest in the natural gas potentialities of the field, with the view to possible pipe line construction that would supply these cities with cheaper fuel for domestic and industrial use.

General Manager Tippy said the Consumers Power Co. and engineers are inclined to support the conclusions of natural gas experts in their estimates of large reserves in Broomfield, but refuse to take the chance of penalizing thousands of customers with the cost and annoyance of changing over for natural gas until there is some definite assurance that the supply will be adequate for a sufficient period to warrant not only a large investment by the company, but by its customers.

To carry natural gas from the Broomfield Field into Saginaw and Bay City in sufficient volume to serve regular gas customers of the Consumers company would mean an investment of more than $1,000,000, Mr. Tippy said.

Independent interests controlling gas wells in the Broomfield area in addition to the Isabella Development Co., have been looking for a market for their product and negotiating with outside interests other than the Consumers with construction of a pipe line in view. A western corporation has been making overtures to Lansing, Grand Rapids and other cities, having to do with the supply of cheaper fuel to these cities. Isabella men interested in wells not tied up by contract with the Consumers company have been promised, it is reported, the offer of a definite contract soon for sale of their gas by a Tulsa corporation.

CHARGES OF MONOPOLY DISMISSED BY COURT

Charges that the United Gas Public Service Co. and the Arkansas Natural Gas Co. violated the antitrust laws in making contracts for natural gas purchases in Louisiana were dismissed by Federal Judge Ben C. Dawkins of the western district of Louisiana.

Judge Dawkins dismissed the action, which was brought by Attorney General Percy Saint on request of 17 Richland Parish landowners, when the attorney general filed a stipulation of dismissal, asserting that his investigation showed that the antitrust laws of Louisiana had not been violated by the defendant companies.

Investigation of the gas contracts was ordered in January by Judge J. T. Shell of Bastrop and the United Gas Public Service Co. was instructed to produce its contracts for examination.

The action marked the first attempt under criminal law to enforce the common act. Constitutionality of the act itself was affirmed by the State Supreme Court in a civil suit filed in December, 1931.

Attorney General Saint's stipulation of dismissal, as filed before Judge Dawkins, said:

"As the United Gas Public Service Co. and the Arkansas Natural Gas Co. did, without prejudice to their rights and without admission of liability, voluntarily submit to Percy Saint, attorney general, for his personal inspection and investigation, the various contracts and documents referred to in the petition filed in this proceeding and as the attorney general has examined the officers and representatives of said company and made other and further examinations concerning the matters and things mentioned in said petition, and as the attorney general has satisfied himself that the antitrust laws of the State of Louisiana, and particularly Act 11 of the special session of the legislature of Louisiana for the year 1915, have not been violated, this proceeding is, by consent of the parties, dismissed and the judge of the United States District Court for the western district of Louisiana is respectfully requested to enter an order of dismissal."

Judge Dawkins' brief order said: "In accordance with the above stipulation, this proceeding is dismissed."

The petition asking for investigation of the monopoly charges, as filed by J. E. Reynolds of Shreveport, who was appointed special assistant attorney general in the case, cited the following claims of the Richland Parish landowners:

That the Arkansas Natural Gas Co. or Arkansas-Louisiana Pipe Line Co. entered into a natural gas contract with the Palmer Corp. or Louisiana Gas & Fuel Co. or the United Gas Co. or the United Gas Public Service Co., which contract constituted a pool, trust, conspiracy or monopoly in the production and sale of natural gas in Louisiana, where competition in the supply or price of natural gas has been or may be restrained.

That the United Gas Public Service Co. is taking by reason of favoritism or preference natural gas from the Richland Field in an illegal manner and that it is giving certain owners of land on which gas wells are located a greater pull of the natural gas than it is giving to other owners in the field.

That it is demanding concessions from landowners in order to get an equitable pull from their wells.

That the gas company is paying different prices for the same quality and pressure of gas to certain persons than it is to other persons in the same field.

That for a time the gas from the wells of W. C. Feazel of Richland Parish was refused by the gas lines now being operated under the above referred to contract and that Feazel, because of illegal combinations and agreements was forced to sell said wells for less than their value under a contract constituting a monopoly.

That $50,000 or more of the purchase price of said wells was illegally paid to others as a bonus to secure the consummation of the sale.

NEW CANADIAN COMPANY

CHATHAM, Ontario, Mar. 19.—In Ontario, the Dawn Oil & Gas Co. has been incorporated with authorized capitalization of $100,000 and office at Chatham, to test a potential westerly extension of the Dawn gas field in Lambton County. F. H. Stover of Chatham is president of the company, which has 1,450 acres leased in Dawn and Sombra Townships. The acreage lies to the west of the proven field in Dawn Township, and about 2 miles west of one of the Union Gas Co.'s largest producers. No. 1 test is being started in Sombra Township, and a systematic development campaign is planned with the Dawn sand around 1,600 to 1,900 feet as the primary objective.

NEW HELIUM PLANT

A new plant for the purification of the rare gas helium, which is used in Navy airships, is being planned by the U. S. Navy Department.

The new plant, for which bids will be opened on April 6, will be built at the Navy's new airship base at Sunnyvale, Calif. It is to have two units, each of which is to be a complete and self-contained outfit for the repurification of helium. Each unit will have a capacity of 15,000 cubic feet of impure helium per hour.

REGINA GAS FRANCHISE

CHATHAM, Ontario, March 19.—Announcement was recently made from Regina, Saskatchewan, that the city of Regina and the Power Corporation of Canada have suspended negotiations for a natural gas franchise under which the Power Corporation proposed to pipe gas from the Bowdoin Field in northern Montana and provide distribution in Regina. Negotiations had, it is stated, reached a practical agreement on all important points, but it was decided not to submit the proposal to the ratepayers at a time when general conditions would make public financing of the project impossible.

CHICAGO CONSUMPTION

CHICAGO, Mar. 19.—Gas consumption in Chicago will show an increase of 12 per cent from 1930 to 1932, and an advance to 30 per cent in 1933, according to James I. Griffiths, assistant secretary-treasurer of Peoples Gas Light & Coke Co., who was under examination by Joseph Grossman, assistant corporation counsel for the city, in the gas rate hearing before the Illinois Commerce Commission. The hearing in which the city seeks further reductions in the price of gas was continued to March 29.

VEGREVILLE FRANCHISE

CHATHAM, Ontario, Mar. 19.—The Vegreville Natural Gas Co., which some time ago secured a franchise to supply natural gas to Vegreville, Alberta, has made tentative arrangements to transfer its franchise to a newly incorporated company, Vegreville Utilities, Ltd. The new group is arranging with C. E. Mills of Minburn, Alberta, for drilling operations to start early this spring.

ENGINEERING REPORT ON FABYAN GAS FIELD

CHATHAM, Ontario, Mar. 19.—A report prepared by Robert W. Jones, M.E.I.C., consulting engineer of Edmonton, deals with the Fabyan gas area in East Central Alberta, where Fabyan Petroleums, Ltd., of Vancouver, British Columbia, is planning to develop natural gas production to pipe to Regina and other Saskatchewan cities. R. E. Williams, president of Fabyan Petroleums, Ltd., has recently been negotiating for natural gas franchise for the Saskatchewan municipalities. Mr. Jones' report states that on the basis of a gas consumption of 40,000,000 feet a day the Fabyan anticlinal fold contains a 50-year gas reserve. The report continues:

"This estimate is based on the known extension of this general fold for a distance of 40 miles in a northwestly-southeasterly direction, with four wells drilled on it averaging an initial open flow capacity of 15,000,000 feet per day.

"All exposures of this formation along the fold show this structure to be comparatively flat; the logs of the wells drilled confirming this at depth, indicate that a conservative estimate for width in cross-section of fold, for wells to average 10,000,000 feet open flow, would be 2 miles. Allowing 160 acres as the economic drainage for each well, this 40 miles in length of the general fold would allow the drilling of 320 wells, or six wells per year for 50 years.

"As the supply for Edmonton is produced from the drilling of two wells per year, averaging about 6,000,000 feet each open initial flow, we can discount the probable reserves in the Fabyan Field 50 per cent and still have a considerable margin left on my estimate.

"In addition to this gas reserve the Hawkins fold, next to the westward, on which the original Grattan well gauged at 6,000,000 feet initial open flow, should produce as good supply as the Viking fold from which Edmonton is being supplied. To the eastward, the Wainwright anticlinal fold has developed, in drilling for oil, five wells with initial open flow of from 8,000,000 to 30,000,000 feet. As most of the wells drilled used rotary equipment, whereby it was possible to shut off the gas in the large gas horizon, the production—mostly from the standard drilled wells—shows that the gas reserve in this field would probably duplicate the reserves in the Fabyan fold. Still farther eastward are two other anticlinal folds which would add to the already known enormous gas reserves."

CONSOLIDATED MAY MOVE

Oklahoma headquarters offices of the Consolidated Gas Utilities Co. may be moved from Oklahoma City to Blackwell during the summer, Logan W. Carr, president, said. The move has been considered for some time by the company officials, he said, but a decision has not been reached. Main offices of the company are in Kansas.

WOULD ODORIZE GAS

CHATHAM, Ontario, March 19.—Odorization of all gas supplied to Edmonton from the Viking Field to facilitate detection of leaks was recommended in a report recently submitted to the Edmonton, Alberta, city council, following a fire at the Corona Hotel.

BORGER REDUCTIONS

AUSTIN, Tex., March 19.—The Railroad Commission has approved a 20 per cent domestic and commercial gas rate reduction for the city of Borger making the domestic base 40 cents per thousand.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

WHAT IS WELL'S CAPACITY?

I am the owner of a well in Kilgore, Tex., which you rated "200 bbls. per hour through a three-quarter inch choke." Would you be good enough to tell a novice what that indicates, What would its probable output be if the well ran to its full capacity, which of course is not permitted under present conditions? One published report rates the well as good for 9,500 bbls.—J. F. O.

First read carefully the article by C. L. Brace in The Oil and Gas Journal of February 18, 1932, on the East Texas Field. From the logs he gives of wells designated as Nos. 6, 7, 8 and 9 you can get some idea of the sand conditions in the area to which you refer. These wells are located on the sketch map accompanying the article and you probably can spot your well with relation to those covered by the logs.

If your well is nearer the eastern edge of the field than any of those enumerated it is suggested that you study the log of No. 1 well in Mr. Brace's article. While that is in the Joiner area and south of Kilgore, still about the same general conditions exist all along the eastern portion of this field as this time, i.e., low bottomhole pressures and small production.

The "200 bbls. per hour flow through three-quarter inch choke" evidently refers to the test made when the well was brought in. As no pressure is given, it cannot be said how long the well may be expected to flow naturally.

The rate of flow through choke in the East Texas Field is rather misleading for by actual test it has been shown that wells first produced through choke and later produced by open flow through the tubing made little gain under the latter flowing conditions. A well in the East Texas Field that made 138 bbls. of oil per hour through a choke (size not reported) made only 146 bbls. when permitted to flow wide open through 2½-inch tubing. The test was made by first checking the production of the well through the choke for one hour, then opening it up for two hours' flow through open tubing, and gauging the amount of oil run into the tank during the third hour.

You probably were puzzled to know how this well could be reported as good for 9,500 bbls. a day if it made only 200 bbls. of oil through three-quarter-inch choke in one hour. This information probably was taken from a scout's report, and you are not the only person who at times is puzzled to know how some scouts estimate well capacity.

In making initial tests in East Texas it has been customary to flow the well open for periods varying from 15 minutes to several hours. The amount of oil produced during this test period then is multiplied to give the daily production, but it is difficult to state under such test conditions whether the wells would make more or less oil if they were actually permitted to flow wide open for a full 24-hour period.

As the field has been under prorated production for several months, there has been little incentive to flow wells at their full capacity when first brought in, because any excess oil run to the tanks could only be taken by the pipe line at the rate set by the railroad commission for each well in the field. For instance, if a 1,000-bbl. tank was filled with oil the first day in bringing in the well, it then would be necessary to shut the well in for 10 days before it could be produced again, as the allowable was only 100 bbls. a day per well. This has now been cut to 75 bbls.

An article that should be of interest to you is one by John T. Hayward, on conditions of sand and their influence on the rate of production of wells, in The Oil and Gas Journal of March 3. If you port, The cost of such services is not Journal closely you can keep well informed on conditions in the East Texas Field, and if there is any specific information you desire, this department will be glad to assist as much as it can.

DOESN'T NEED MAGNETOMETER

Please tell me where I can buy a field testing meter, the so-called magnetometer, that will give me a reading as deep as 600 feet. Can I get a second-hand instrument or rent one for use by myself only? Which instrument is the cheapest? I am a driller in the Kentucky Field and have five big wells.—G. E. H.

Your question indicates that you have obtained incomplete information regarding the magnetometer or that you have it confused with some other instrument.

In the first place the magnetometer and other geophysical instruments are not for the operator in a proven field. They are for exploratory work to indicate the presence (or absence) of underground formations favorable for the deposition of oil. The drill must be the actual test as to whether there actually is oil or not. As you have five big wells already, you do not need any geophysical instrument to help you in finding out whether there is a structure favorable for the accumulation of oil under your property. You know now.

In the second place the magnetometer and other geophysical instruments are worthless except to persons of scientific training. In the hands of a man without such training a magnetometer would be about as useful as an oil field tractor would be to a short-order cook.

TREATING THE DRILLING MUD

Will you be kind enough to advise me whether iron oxide or hematite is used by drillers when packing the sides of a well in rotary drilling?—J. K.

Various admixtures are used in preparing rotary drilling mud for the different conditions encountered in drilling holes for oil and gas. They are selected for various functions such as increasing the colloidal quality of the mud, to add to the body of the mud, and as a weighting material. In an article appearing in The Oil and Gas Journal of June 12, 1930, C. P. Parsons said:

"When a natural mud drilling fluid is thickened to get more weight simply by cutting down the percentage of water, the result is to increase the viscosity and percentage of solids in the fluid. With this procedure, the maximum additional weight is very limited and the tendency is to get a thicker fluid that might present difficulties in circulating and will not readily release cuttings and sand content.

"Also, it will be more liable to become gas-cut. Very often a thick mud looks like a heavy mud. There have been cases of mud so thick that it would hardly run out to the pit, but weighed very little more than water. If the natural mud is favorable and the desired increase in weight is within practical limits, it is possible to treat the solids in the fluid with an alkali to reduce the cohesion of particles and reduce the viscosity.

"However, a more simple and more widely used method is to add a powdered weighting admixture of high specific gravity that will increase the weight of the fluid without increasing the viscosity.

"Such a material should be finely ground and should have sufficient colloidal quality of its own not to drag on the colloidal quality of the mud body.

"Iron oxide and hematite have been the materials mostly used as weighting admixtures.

"Iron oxide is a very high form of oxidation of iron and has a specific gravity of 4.9 When used as a weighting admixture it should be ground to about 300 mesh and should be treated to give it independent colloidal quality. Also it should be free from abrasives.

"Hematite is an iron ore containing about 70 per cent of iron. The color is usually some shade of reddish brown. Its specific gravity is 4.8 to 5.3 and hardness is 5.5 to 6.5."

WHY WAS IT CALLED THAT?

ASPHALT

Asphalt gets its name from the Lacus Asphaltites or Dead Sea, where this mineral pitch, a product of the decomposition of vegetable and animal substances, was found in ancient times.

The Bible records the war waged by the king of Persia against Sodom and Gomorrah, whose subsequent destruction, ascribed by Moses to divine wrath, provided one of the tragedies of history. Telling of the attack of the Persian army on Sodom, Josephus says: "When they came over against Sodom they pitched their camp at the vale called the Slime Pits. At that time there were pits at that place, but now upon the destruction of the city the vale became the Lacus Asphaltites."

PIPE IN GATHERING SYSTEMS

What kind of pipe is used in the gathering systems of casinghead gasoline plants and in the compressor stations? What sizes and lengths? What is the working pressure? How deep is the pipe buried? Is it taken up and relaid from time to time? What is the average life of a gathering system? What kind of couplings are used? Can you give me the same information on oil-gathering systems?—F. C. W.

Casinghead gasoline plants are of the absorption type, straight compression type or a combination of the two. Absorption plants predominate.

In some cases no boosting stations are required in moving the gas from the wells to the compressor station, this being accomplished by the well pressure. A typical gathering system, however, would consist of lateral lines carrying the gas from the wells to a booster station and a large line carrying it from that point to the compressor plant. The gas is moved from the wells to the booster station either by the well pressure or by pulling a vacuum at the booster station.

The size of the gathering lines is determined by the volume of gas that must be carried by them. Two-inch may be said to be the smallest size used. The line from the booster plant to the compressor plant will be of such size as will take care of the total quantity of gas carried from the wells to the booster plant. Ten-inch is a common size though it might be as high as 24-inch. The pressure in the line between the booster plant and the compressor plant is usually not higher than 40 pounds. The lateral lines have a vacuum pressure of 28 mercury minimum.

The joints of pipe run from 20 to 40 feet, as desired. The longer the pipe joints the fewer couplings needed of course and the smaller amount of work required in making connections. The lines are buried 6 to 24 inches deep. They are likely to be taken up as the volume of gas diminishes and replaced with smaller sizes of pipe, the large pipe being used elsewhere as needed. The life of the gathering system depends upon the life of the gas field that feeds it. The same couplings that are used on regular natural gas lines are suitable for the gathering and booster lines.

It is not uncommon to employ used well casing for gathering systems where the soil conditions do not make this course inadvisable. The ideal pipe for use in these systems is a light-weight, noncorrosive type.

The pipe and fittings used in the compressor plant must be able to withstand the pressures to which they are subjected, and these range from 150 to 600 pounds.

The requirements for oil-gathering systems are, generally speaking, the same as for casinghead gasoline.

WHAT DO THEY STAND FOR?

In reading over the reports of drilling in The Oil and Gas Journal I notice after the identification of the well there is a statement of its depth and in some cases the letters "S.D." or "T.D." Occasionally there will be the letters "S.D. D.S." Kindly explain these abbreviations.—D. J. G.

The abbreviations you quote refer to drilling conditions at the well at the time of the report. "S.D." means shut down. "T.D." means total depth. "S.D. D.S." means shut down for drill stem; that is, the well is shut down awaiting the arrival of a drill stem. If you will refer to the Field Problems department in The Oil and Gas Journal of September 25, 1930, you will find a list of oil field abbreviations and their meaning.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GAS FOR MOTOR FUEL

Do you have any information relating to the utilization of natural gas, either direct or modified, in place of gasoline?—H. T. D.

Experiments have been reported by J. B. Garner in the Proceedings of the Natural Gas Association of America, Vol. 10, 150, 1918, covering the use of natural gas as a motor fuel. Doctor Garner states, in a personal letter, that additional demonstrations were made in June, 1918, with commercial liquefied butane, in these the hot exhaust gases were directed onto the cylinder containing the liquefied gas for the purpose of supplying the necessary heat to cause gasification of the liquid. No difficulty whatsoever developed in the utilization of the hydrocarbon gas in the place of the usual gasoline.

Many investigators have for several years endeavored to find perfect methods for the economical distribution of gas so that it could be used as a fuel in automobiles. German experts have been especially active because of the high price of gasoline and the fact large volumes of gas were being wasted, or being used for fuel, at the large coke-producing plants. This gas contains about 25 per cent methane and much attention has been directed to methods for converting this methane to benzol for blending with gasoline and other liquid fuels to supply the desirable antiknock qualities. More recently the experiments have been confined to direct use of methane as a motor fuel, and Dr. J. Bron, of the Ruhr Gas A.G., has used cars with from four to eight cylinders without meeting with any difficulty.

The important point is to obtain a homogeneous mixture of methane and air, which was effectively accomplished by the use of a special mixing valve. It was shown that approximately 32 cubic feet of methane was the fuel equivalent of 1 quart of gasoline. There was better combustion with the methane than with the gasoline as evidenced by the exhaust containing practically no carbon monoxide, and after long use there were no deposits of carbon in any part of the motor.

Several instances are given in which methane has been in use in trucks and other motor vehicles for more than a year. One important consideration is the weight of the cylinders for the highly compressed gas, although not a serious matter for the larger buses and trucks the type of cylinder will have to be modified if gas fuel is to come into extensive service for the standard car. A cylinder of light metal reinforced with a cover of closely wound wire has been made. This reduces the cost of transportation and the lower weight makes this cylinder serviceable without any increased danger.

With the large quantities of liquefied propane and butane now available it appears that there is little prospect for an appreciable development of this idea with respect to natural gas any time soon. Gasoline is so cheap and the facilities for its distribution so extensive that a satisfactory substitute for gasoline will in all probability not become available on any broad scale for many years.

For an extended article on this subject see, "Natural Gas as Fuel for Automobiles," by C. K. Francis, The Oil and Gas Journal, July 26, 1928, page 40.

ALCOHOL QUOTA IN GERMANY

What is the proportion of alcohol required in Germany to be blended with gasoline imported for motor fuel? Is this 6 per cent or 4 per cent of the gasoline imported?—E. A.

The regulation effective in Germany after October 1, 1931, stipulated that alcohol should be purchased in quantities equivalent to 6 per cent by weight of the gasoline imported. A previous order had fixed this quota at 3.5 per cent until April 1, 1932, when it was to be increased to 4 per cent. This change has been explained as a measure to aid in the disposal of the exceptionally large potato crop in Germany for the season of 1931; the potato being one of the raw materials from which alcohol is obtained.

TREATING GASOLINE IN VAPOR PHASE

I would like to have a description of the process in which fuller's earth is used for treating gasoline in the still. I am informed this is a continuous tube still arrangement.—A. C. B.

The Osterstrom process was described by W. W. Holland in The Oil and Gas Journal, December 31, 1931, page 22. In this process cracked distillates are rerun through a tube still at a high velocity while mixed with the filtering medium.

The distillate is picked up by a low-pressure pump and discharged into a clay proportioned device from which the mixture of distillate and clay is delivered by means of a high-pressure pump into the tube still. Under a pressure of 200 to 500 pounds, the distillate and clay pass at high velocities through the tube still where the temperature is raised to 600° to 650° F. The length of time at which the mixture is kept at this temperature, as well as the exact choice of temperature and pressure, is determined by the characteristics of the distillate under treatment, the amount and kind of clay used and the quality of the finished product desired. Very fine fuller's earth, bentonite, Death Valley clay and other products of this nature have been successfully used.

Leaving the tube still, the mixture passes through orifice plates to reduce the pressure. This method was found to be superior to the use of valves which were quickly cut out by the erosive action of the clay. The drop in pressure causes a drop in temperature and a vaporizing drum is here provided to permit of separation of the clay and polymers from the gasoline fractions. The latter are delivered to a fractionating tower which handles them in the conventional manner.

The mixture of polymers and clay is reduced in temperature to safe limits and passed to a tank from which it is pumped into the filter press. The filtered polymers are stored in a tank and the clay cake goes to the dump. The coke is fairly dry and the filtrate relatively clean oil. The use of all metal screens in this process has not proved entirely satisfactory, since it is very difficult to remove the finest particles of clay. The combination of metal screens and cloth blankets has been found to be satisfactory.

The results obtained are indicated by the tests of the raw distillate and finished gasoline shown in the table.

VAPOR PHASE TREATING

	Raw	Finished
Gravity A.P.I.	55.3	55.1
I.B.P.	90°F.	100°F.
10 per cent	148	158
50 per cent	284	288
90 per cent	400	386
Endpoint	424	410
Color, Saybolt	...	30
Gum mgm.	...	0.2

Further details may be obtained from the reference.

METHODS FOR RECOVERY OF SULPHURIC ACID

What is the most economical method for recovering sulphuric acid? How does the recovered acid compare with fresh acid in value? If the gravity is low, how may it be raised to commercial grade?—E. G. G.

There are several processes adapted to the recovery, or reconcentration, of waste sulphuric acid and the sludges formed in the refining of petroleum products.

In one use is made of an electrical discharge from tubes or a series of plates. Electrodes of this type are suitable for treating hot vapors or mists containing sulphuric acid. The mist of water and sulphuric acid passes through the treating field at the rate of 6 to 8 feet a second with a reported recovery of 95 per cent of the suspended acid mist. The unit is in two parts, the electrodes and the precipitator. The precipitator consists of a compounded discharge electrode and collecting electrode, these vary in number with the quantity of vapor to be treated and the character of the material to be removed. For sulphuric acid a lead-covered radial section of iron or copper wire is used. The collecting electrode is usually a tube 8 to 10 inches in diameter and about 10 feet long. The electrical precipitator functions as a knock-back, or dephlegmator. The acid formed runs directly to the concentrator and any free gas or steam is discharged to the atmosphere. The larger plants of this type produce over 50 tons of 66 degree acid from the dilute acid, which may be received down to 30 degrees. The vapor passes through the system at the rate of 15,000 cubic feet per minute.

Another recovery system utilizes hot air. The method is to vaporize the acid by passing heated air through the mixture and, after partial cooling of the vapors and gases, then pass the products of this heating through an electrical precipitator. Masonry towers or drums lined with brick are used for the treatment with the heated air, from this element the vaporized material flows to the precipitators.

A well-known method is to do the heating of the weak solution and the concentrating under vacuum. The acid is usually concentrated in two steps so as to permit settling of the acid at a density of about 60 degrees. The weak acid is drawn by vacuum into the preliminary concentrator, which is heated by steam under 30 to 45 pounds pressure. When a density of 56 to 61 degrees is reached, the vacuum of this unit is broken and the acid discharged by gravity into a storage tank. The settled acid is again drawn by vacuum into the final concentrator, which is heated by hot oil circulated through a furnace. Here the acid is concentrated to 66 degrees, then cooled and run to storage.

The usual practice in refineries is to give the material from the acid separators a preliminary treatment before sending it to the recovery unit. This preliminary handling may include washing the sludge with water and heating for the purpose of causing a separation of the tarry material and the decomposition of secondary organic products. The liquid portion is then heated in open vats or kettles by means of high pressure steam.

The cost for recovering acid in petroleum refineries may vary from $1.50 to $8 a ton, the lowest costs being obtained at the larger plants handling the maximum quantities of the acid.

The recovered acid compares very well with the original, in fact some refiners prefer it for some forms of treating, and if the concentration is a little low it may be brought to full strength by the addition of new acid.

DILUTION THEORY OF DETONATION

Do you have a brief outline or explanation of the dilution theory of detonation? A simple explanation of this would be appreciated.—R. W. J.

The several explanations which have been effected concerning motor fuel detonation have gradually developed through the results found by several investigators. A recent paper by I. A. J. Duff, Journal Institution Petroleum Technologists, 17, 697, 1931, discusses the dilution hypothesis. The material following is abstracted from this source:

The basic idea of the hypothesis—self-ignition of a modicum of the charge under certain conditions—is not new, as it was put forward by Ricardo in 1924, but no clear explanation of the rationale was put forward then or later, and subsequent work has, if anything, tended to discredit and overlay the idea.

More recent work by Callendar, Mardles and King (1928), taken in conjunction with Ricardo's work (1924), and experimental work due to the Michigan Laboratory (1928-9), Maxwell and Wheeler (1927-8) and the Anglo-Persian Oil Co.'s research laboratory and engine research branch have supplied the links missing in 1924. It is now possible to offer a theory which fits ascertained facts so closely that it may even be deemed worthy of consideration as a fundamental explanation.

The hypothesis is, in brief, that every fuel has an actual ignition temperature below which oxidation is fairly slow, but above which a flame forms and propagates rapidly throughout a mixture; that ignition at this temperature arises from neuclei which in the case of proknocks are probably the peroxides formed during the latter part of the compression stroke and cause local actions with rise of temperature; and that if this rise reaches the ignition temperature in the still unburned part of the charge the latter ignites with a more or less sudden rise in temperature and pressure, causing the emission of a wave pulse of extremely sudden increase of pressure, the impact of which on the walls causes the knock.

Flexibility of operation
characterizes Kellogg Cracking Units

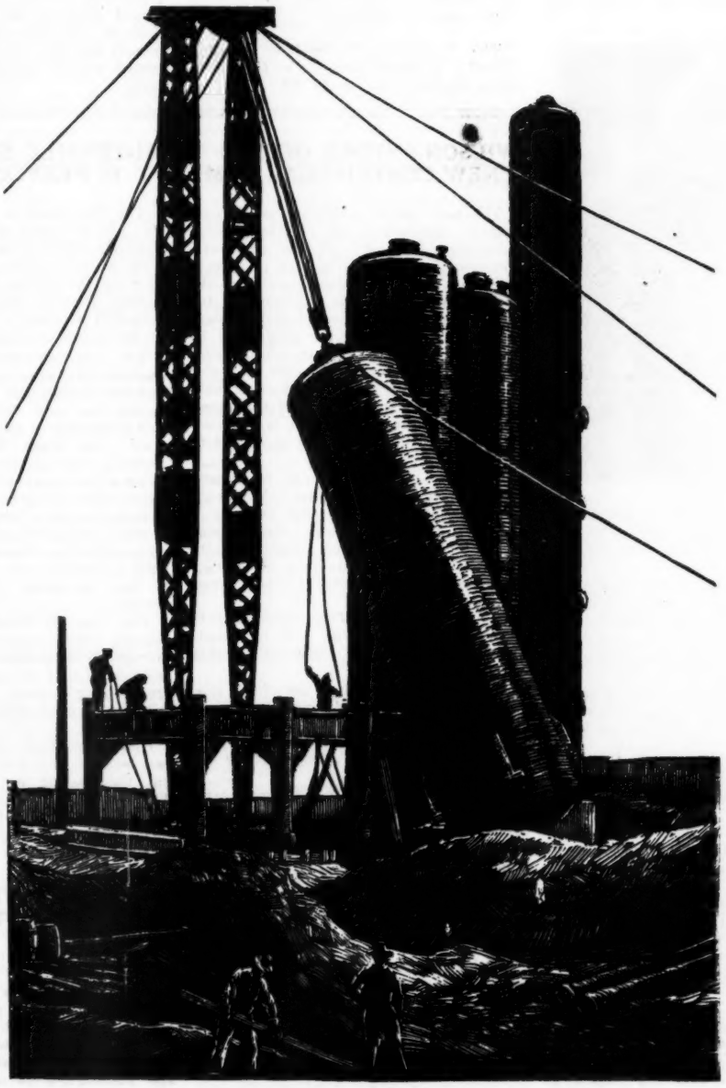
MARKET conditions are constantly changing. Equipment in the refinery must be capable of meeting new demands of operating and sales departments.

Complete control of all zones permits oils of varying characteristics to be charged to the cracking units which The M.W. Kellogg Co. is constructing at the present time.

Definite control of the recycle is also secured so that the qualities of furnace thruputs are correct for the respective temperature and pressure conditions.

It is possible with these units to produce gasolines of varying end points and octane ratings, at the same time eliminating fuel oils ranging from Bunker C to a heavy pitch in quality.

The very elements that give flexibility in handling a variety of stocks also make possible the maximum yields of desired products.



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Kellogg products include Cross, Holmes-Manley, and de Florez cracking units; de Florez furnaces and temperature control apparatus; pipe stills; Pacific Centrifugal Pumps; absorption, stabilization, and treating plants; Masterweld pressure vessels; complete refinery and power plant piping

Oil Industry Equipment and Supplies

ARMSTRONG ANNOUNCES IMPROVED STEAM TRAP

High capacity and simplicity feature the free floating lever steam trap developed by the Armstrong Machine Works of Three Rivers, Mich. This trap uses the inverted bucket principle, designed to insure self-scrubbing, absence of air-binding and other characteristics of the inverted bucket type.

In the illustration the pencil points to the valve lever which loops over two guideposts at one end and engages the

bucket hook at the other. When the bucket floats it pushes directly against the valve stem, forcing the valve to its seat.

Steam pressure within the trap holds the valve against the seat. Water entering the inverted submerged bucket causes the bucket to lose its buoyancy and exert a pull on the end of the lever. The valve is opened as soon as the weight of the bucket, multiplied by the high leverage, is greater than the pressure holding the valve against the seat. The valve lever when opening fulcrums on the knife edges which bear directly on the valve seat.

Using a high leverage for opening the valve and a direct 1-to-1 lift for closing prevents excessive wear on the operating mechanism. There is little strain on the operating mechanism when the valve opens. The bucket increases its pull on the lever until the valve opens. In closing the speed of the bucket is at a maximum just as the valve reaches its seat. With the free floating lever construction, the 1-to-1 closing leverage causes less wear. The knife edges make it possible to open larger diameter orifices at a given pressure.

Stainless steel wearing parts and only two moving parts keep down maintenance costs. The new traps are furnished in cast semisteel for pressures up to 250 pounds. In the forged steel pattern, the traps are available for 600, 900 and 1,500 pounds pressure service with any degree of superheat. In addition, the new line includes compound traps for handling large volumes of water at any pressure and special traps for pulsating pressure conditions.

PORTABLE FLIGHT CONVEYOR

In broadening the scope of its portable conveying machinery line, the Link-Belt Co., Philadelphia, Pa., has brought out the Link-Belt "bituminous type" portable flight conveyor. Specifications show the adaptability of this machine to handling coal, coke and other lumpy materials, as well as fines.

NOTES ABOUT TRADE LITERATURE

E. J. Lavino & Co., Bullitt Building, Philadelphia, Pa., are distributing a folder regarding Wetkrome, a wet, ready-mixed, ready-to-use cement.

A new bulletin, listing all the latest sizes of Shafer roller bearings, both single and double row, is being mailed by the Shafer Bearing Corp., 6501 West Grand Avenue, Chicago.

The "Caterpillar" Diesel is the subject of a broadside sent out by the Caterpillar Tractor Co., Peoria, Ill.

A 20-page booklet issued by the Manzel Brothers Co., 309 Babcock Street, Buffalo, N. Y., is devoted to the company's model 25 force-feed lubricators for positive and automatic lubrication of cylinders and bearings.

The Wagner Electric Corp., 6389 Plymouth Avenue, St. Louis, Mo., has issued Bulletin No. 174. Its 22 pages describe the seven types of squirrel-cage motors and give application tables, speed-torque curves, complete construction details.

WILSON-SNYDER OFFERS NEW CENTRIFUGAL PUMP

The new series multistage centrifugal pumps announced by Wilson-Snyder, Pittsburgh, Pa., are of the horizontal single-suction type, having the pump-case split on a horizontal plane parallel to the shaft on the center line. Suction and discharge openings are located in the lower half of the case, and the pump can be opened without disturbing piping connections. The joint in the case is a flat surface carefully machined. Dowels hold the upper and lower parts of the pump case in alignment. The flange is equipped with two break-joint screws as an aid to opening the pump.

Standard pump cases are of rugged construction with extra heavy interstage and case bolting. Each case receives a hydrostatic test of twice the normal working pressure. When conditions require other than cast iron, the pump case can be made of bronze, steel, monel metal, etc.

The impellers are of the enclosed pattern, single-suction type, and in standard construction are cast of special bronze.

Impeller and case rings are of the labyrinth type, made of special bronze. Different alloys are used for each to insure longer wear. The case rings are held securely in place by a special locking arrangement.

Case bushings are used between the stages of the case. These are made of bronze bushed with a special bronze impregnated with graphite, assuring continuous self-lubrication and permitting close clearances between the case bushing and the distance piece.

Distance pieces are installed between the interstage impellers, and in standard construction are made of bronze.

The shaft is made of alloy steel of large cross section, with its entire surface ground on dead center grinder to close limits with fillets at all steps.

ALLOWS HIGH DELIVERY SPEED

A new development in high-speed aluminum tank truck meters is announced by the manufacturers of Brodie Universal positive displacement meters. This meter was designed, according to the manufacturers, to permit greater delivery speed without increasing the weight or space required for mounting. The meters are set in the compartment at the side of the tank. Because of the low-pressure drop requiring only 1-inch head to operate, little resistance is given to the flow, which assures maximum delivery speed. Each meter occupies a space 14"x14"x14", and weighs approximately 55 pounds. Each is of all-metal construction with only five moving parts. The Ralph N. Brodie Co., Inc., of Oakland, Calif., also manufactures a complete line of meters for bulk station service.

HI-TENSILE ELECTRODE IS PERFECTED BY PAGE

The Page Steel & Wire Co., Monessen, Pa., has developed a new type of coated electrode, which gives quiet operation with little or no sputter. As the arc is free burning, the molten pool of metal can be readily observed and the amount of metal deposited accurately judged. There is little or no loss of metal due to spatter.

The grain structure of the weld is essentially the same as that of mild steel and boiler-plate base metal. In fact practically the only difference between the two structures is said to be that the deposit from Page Hi-Tensile electrodes shows a finer grain. The electrode provides extra-deep penetration and sound welds. The strength of the finished weld is equal to that of the base material with a total elongation of over 30 per cent when pulled to destruction. The finished weld is ductile and also responds readily to heat treatment, if heat treatment is desired.

The Page Hi-Tensile electrodes do not require reverse polarity for efficient operation. With straight polarity, the speed is equal to that of any other type of electrode using reverse polarity. If reverse polarity is used, even faster speeds may be obtained.

Other advantages are that the electrode can be bent to a reasonable degree without the coating peeling or falling off. The coating is moisture proof and it requires no baking before using. Full information on these electrodes can be obtained by writing to the company.

SULLIVAN INTRODUCING READY-SET BORTZ BITS

The Sullivan Machinery Co., 400 North Michigan Avenue, Chicago, is offering "ready-set" bortz bits for the convenience of those who wish to avoid employing the services of a skilled diamond setter, or of carrying an excess stock of bortz for their own requirements. "Ready-set" bits are maintained in standard sizes for prompt shipment. Two types are available, one being of a new and interesting design. The ordinary or square shoulder bit has been standard for years. It is a well-known fact that in these bits the stones set on the outside have more work to do than the inside stones, consequently wear more rapidly than the latter.

By rounding off the shoulder of the bit on the outside, it is possible to set a larger number of stones. This equalizes the work done by the outside stones with that done by the inside stones. The use of small South African bortz for setting core bits for diamond drills was introduced several years ago and the use of bits set with small bortz is now recommended in all consolidated or solid formations, whether hard or soft.

OFFERS NEW SYSTEM OF VACUUM REFRIGERATION

A vacuum refrigeration system for maintaining water at low temperatures has been developed by the Foster Wheeler Corp., 165 Broadway, New York. The system can be installed wherever there is a supply of steam for operating the equipment.

The operating principle is "flash evaporation." The water to be cooled is piped into a chamber in which a high vacuum is maintained. It is obvious that if the water delivered to the vacuum chamber is warm and the vacuum is high the reduction in absolute pressure of the water will cause the water to boil, evaporating off a portion of the water. The vapor which is liberated from the body of water absorbs latent heat of vaporization. This latent heat of vaporization is received from the heat of the liquid introduced into the flash chamber. The abstraction of this heat cools the remaining water to a temperature which corresponds to the absolute pressure in the flash chamber.

This system of refrigeration is adapted for oil refineries in the precooling of paraffin distillates and wax prior to actual refrigeration necessary for the recovery of wax. As a precooler this device will reduce the load on the main refrigeration equipment with a consequent increase in economy. The device is also applicable for condensing and cooling of the extremely light ends in gasoline vapor recovery.

The cooled water is refrigerated directly without the necessity of an intermediate refrigerating medium such as ammonia or sulphur dioxide. The apparatus operates under a vacuum and is not subject to the danger of explosion. No noxious or poisonous vapors can escape from the system as none is used. There are no moving parts except the rotors of the two centrifugal pumps. Lubrication troubles are consequently avoided.

DRYSDALE AND BUTLER NAMED

William C. Dickerman, president of the Montreal Locomotive Works, Ltd., announced that William F. Drysdale had been appointed vice president of sales and H. C. Butler vice president of manufacturing. The Montreal Locomotive Works, Ltd., will manufacture a complete line of process plants and equipment for the oil refining industry, using the patents and processes controlled by Alco Products, Inc., New York, and a complete line of modern Diesel engines, in accordance with the designs and patents of the McIntosh & Seymour Corp., of Auburn, N. Y. It will continue to manufacture steam, electric and Diesel locomotives. Mr. Butler formerly was manager of the company and was located in Montreal. Mr. Drysdale in 1915 was made special representative in Europe for the Montreal Locomotive Works, Ltd., and the American Locomotive Co.

PRODUCING ORIFICE FITTING

Improvements have been made in the Daniel orifice fitting and the J. A. Campbell Co. has placed the fitting in production. The Campbell company, which will have complete control in the manufacture and distribution of this orifice fitting, states that the plate can be changed and inspected in one to three minutes, regardless of the amount of line pressure. A one-speed wrench performs all of the operations. The plate-operating mechanism is said to be so powerful that a 1,000-pound pull is easily exerted by a turn of the speed wrench. Literature describing the fitting can be procured from the J. A. Campbell Co., Box 600, Long Beach, Calif.

Oil Industry Equipment and Supplies

LOADING PLATFORM SENT KNOCK-DOWN TO BUYERS

By incorporating several novel features the Economy Engineering Co., 2653 West Van Buren Street, Chicago, has developed an efficient and attractive loading platform. By fabricating the structure in sections it can be shipped knocked down for ready assembly by the purchaser with the aid of simple instructions and ordinary labor. The roof supporting frames are shipped fully assembled for ready attachment to the upright members of the platform. Rigidity and stiffness are gained by adjustable tie rods, fastened to the upright panels beneath the platform surface as well as between the members overhead. Six 12"x12" concrete piers are suggested as the proper foundation and the platform surface itself is made of wood rather than steel to prevent sparking. A steel stairway leading to the platform is furnished if desired.

All members, including the corrugated steel roof, are finished with two coats of aluminum paint, unless otherwise specified.

LATHE FOR SMALL SHOP USE IS PUT ON MARKET

Extending its line in the small shop field, the South Bend Lathe Works, South Bend, Ind., is placing on the market a new 8-inch Junior back-geared screw cutting lathe for general purpose use in the small shop and laboratory. This equipment unit is a precision lathe said by the manufacturers to be capable of performing the most accurate work. Available in countershaft and individual motor drive, the lathe is built with a back-geared headstock with three-step cone providing six changes of spindle speeds—three direct for light machining at high speeds and three back-geared for heavier work and slow speeds.

Among the mechanical features pointed out are: Hollow spindle of alloy steel, Acme precision leadscrew of three-quarter inch diameter; automatic longitudinal feed to carriage; tailstock set-over for taper turning; screw thread chart by which threads may be cut from 4 to 40 per inch.

Bed lengths supplied are 24, 30, 36 and 42 inches. All types of turning, facing, boring, chucking, drilling, tapping, tapering, reaming, grinding, polishing, etc., may be done with this lathe and attachments are available for special work, if desired. Motor-driven lathes are equipped with 1,800 r.p.m. motor, belts, etc.

CONTINUOUS BLOWDOWN SYSTEM

If the control of concentration in boiler water is to be accurate, the blowdown must be accurately controlled. If it is not, concentration will not be properly maintained while blowdown losses may be increased along with the cost of water treatment. The Elgin Softener Corp., Elgin, Ill., has brought out the Eckel precision control with its continuous blowdown system. This control is said to possess features contributing to the simplicity of the installation and reducing maintenance cost. The blowdown is controlled after it has been cooled, so that trouble due to flashing of blowdown water into steam with subsequent erosion has been eliminated. Wear and tear due to the abrasive action of the impurities is said to be avoided. Any one of a number of boilers can use the same heat reclaimer. Each boiler can be operated according to its own individual requirements without in any way affecting any of the other boilers. Consequently the concentration of each boiler is controlled with precision regardless of fluctuations of the load.

COOLING TOWER ADAPTED FOR OIL FIELD SERVICE

The Schubert-Christy Corp., Affton, Mo., has placed on the market its new induced draft cooling tower, especially adaptable to oil-field service and designed to produce the low water temperatures essential to economical refinery and gasoline plant operation.

The fans are at the top of this tower and handle the warm exhaust air only. This prevents formation of ice on the fan blades, eliminating one of the fan accident hazards. By placing the fans above the filling a uniform flow of air throughout the tower is acquired, the result being a greater cooling capacity with the same power input. By eliminating the fan houses, the foundations are simplified and space requirements are reduced. The entire structure is bolted together, giving it extreme strength and making it portable.

Multispeed remote control of fans permits the operator to regulate the fan speed to handle properly any weather or load conditions, with a corresponding saving in fan power. The large natural draft openings make it possible to shut down the fans entirely during a large portion of the year. The tower is designed to permit maximum economy and efficiency under any weather condition.

The cypress or redwood used is treated with a preservative of high penetrating power. All metal parts are rust proofed or made of a nonferrous composition.

Ben Bush and Howard F. Grimes have been appointed to the sales staff of the forged fittings division of the Bonney Forge & Tool Works, Allentown, Pa. Mr. Bush will have charge of the selling in the New York and Pennsylvania district. Mr. Grimes will have the middle western section of the country.

EQUIPMENT FOR MAKING WATER TEST ANNOUNCED

An important problem in connection with the conditioning of boiler water is that of determining the balance of the water within the boiler and the treatment required to maintain the correct balance. Unless the true conditions are known, treatment may be inadequate and needlessly expensive, heating surfaces may be in danger of embrittlement while foaming, priming and needlessly high blowdown losses may occur.

The Elgin Softener Corp., Elgin, Ill., has developed the Elgin boiler water test cabinet No. 101, which consists of the concentrometer, for measuring the concentration directly in grains per U. S. gallon; and the apparatus and reagents necessary for chemical analysis. The concentrometer is furnished in a portable case while the reagents, test tubes, flasks, pipettes and burettes are mounted in a sturdy, gray enameled steel cabinet. This cabinet, designed to be hung upon the wall, is 26x35½x9 inches in size and contains the equipment necessary to make a complete chemical examination of boiler water for hardness, hydroxide, alkalinity, carbonates, chlorides, total soluble concentration and suspended matter. Complete directions are also given for calculating sulphate content and sulphate-alkalinity ratio.

CONCENTRATION HYDROMETER

Occasional testing of boiler water samples for concentration removes the element of doubt as to blow-down requirements. The new Dearborn concentration hydrometer, manufactured by the Dearborn Chemical Co., 310 South Michigan Avenue, Chicago, is said to make possible rapid and accurate determination in one operation.

CURRENT INTERRUPTION SPEED IS CONTROLLED

Close and accurate control of the frequency of current interruption in line welding and an increase in speed of interruption up to 1,800 per minute are among advantages of a new type of Thyratron tube timing control announced by the General Electric Co. The new control replaces mechanical interrupters.

The equipment operates in synchronism with the alternating current supply of the welding machine. The weld always is started at a predetermined point in the voltage wave and stopped when the current passes through zero. Thus the period of current application can be controlled accurately even with "on" times of but one or two cycles.

The new synchronous tube timer supplements and is designed to work in conjunction with the General Electric welding control type CR 7503 recently announced which uses Tyratron tubes instead of contactors for interrupting the flow of current. By a combination of the two equipments, a close degree of accuracy and a high welding speed are obtained.

The control embodies a series transformer the primary of which is connected in series with the primary of the welding transformer and the secondary of which is short circuited by two Thyratron tubes connected thereto. Welding current will not flow unless the grids of these tubes are properly energized. For controlling and energizing the grids of these Thyratrons three small Thyratron tubes are used. One in combination with a condenser acts as a timer. This timing Thyratron trips when the condenser is charged to a certain point and controls the grids of the other two small Thyratrons which, in turn, control the two power Thyratrons. The control has no moving parts.

ELECTRICITY TAKES BIG PLACE IN THE OIL INDUSTRY

Of striking incidents in the oil industry, several of the most interesting during 1931 were identified with electricity, says the Westinghouse Electric & Manufacturing Co., in a booklet just published detailing engineering achievements. The year's outstanding developments as affecting electrical participation in the petroleum industry are summarized as follows:

"Deepest Well, Temporarily.—The first man-made hole to pass a 10,000-foot depth was finished last May in Ventura County, north of Los Angeles, at 10,050 feet. It was drilled with an electric rig, and made a record that was glittering—but temporary. A later well, in Mexico, reached 10,532 feet. Now a 15,000-foot well is contemplated.

"A Pipe Line Remotely Controlled.—There are about 170,000 miles of oil and gas pipe line in the United States, and every few miles there are pumping stations—sometimes close, sometimes far, a 30 or 40-mile interval being perhaps an average. In each pumping station are men, nine of them on one typical line, who control the pumps, telephoning back and forth between stations.

"At Sand Springs, Okla., there is a pumping station which casts its shadow, like a question mark, on all these thousands of stations, for the Sand Springs plant can operate without a soul being near, under control by wire from an office building in Tulsa, 15 miles away.

"By the development of ideas familiar in street railway and in central station engineering, everything necessary to know or to do at Sand Springs is transmitted over wire to Tulsa, where an operator can read incoming and outgoing pressures, can select which of the three 800-horsepower pumps to run, and can start and stop them. All ordinary mischances to the machinery are guarded against by automatic devices.

"There seems no particular reason why the entire pipe line, from Tulsa to Chicago, with its 10 stations, could not be similarly controlled from two or three intermediate points. Two small wires only are necessary to control any number of stations within a 200-mile distance.

"East Pittsburgh to Sindbad's Island.—In the Gulf of Persia, down which Sindbad used to pass on his voyages, lies the Isle of Bahrein, which may well have been one of those on which he was shipwrecked. This island has within it a stronger magnet than the one which drew the nails out of Sindband's ship—it has oil. And it has drawn to itself from a third of the way around the world the first Diesel-electric cable tool drilling rig ever built. First examples of a new design do not often go so far from home, but the Standard of California, of which the Bahrein Petroleum Co. is a subsidiary, has had previous experience with Diesel-electric rotary drill rigs.

"Refineries Without Motor Houses.—Something of a revolution in oil refineries is expected—disappearance of the substantial buildings which have hitherto housed electric motors and control. Such housing has previously been necessary because the equipment needed protection from the weather and because a brick fire wall has always been customary between motors and the pumps they drove. This year's new motor and control are proof against both weather and explosion, and are set up outdoors with no architectural formalities whatever."

WHITTIER APPOINTED AGENT

The Whittier Sales Corp., Los Angeles, Calif., has been appointed exclusive agent for Rainey fissure sealing compound, according to Roy Guthrie, president. Rainey fissure seal is used in reclaiming lost circulation, eliminating caving and heaving formations, treating drilling mud to prevent it being cut by gas or water, and eliminating bottom and intermediate water in old producing wells. It is prepared in various formulas to meet the needs of specific cases. One of these formulas of particular interest is that which is made for the purpose of dissolving steel which is obstructing drilling. The Whittier Sales Corp. acts as factory representatives for manufacturers of core bits, drilling bits, rotary jars, perforators, boilers, hard facing, welding equipment, etc. It also takes contracts for well drilling, being the representative of the Commercial Drilling Co. Associated with Mr. Guthrie are oil tool sales and service men with broad experience in both the California and Mid-Continent Fields. J. C. (Jess) Smetherman and V. A. Mitchell are vice presidents. The company maintains headquarters in the Foreman Building, Los Angeles.

ACQUIRES LARGER QUARTERS

Following the merger of the Allis-Chalmers Manufacturing Co. and the Advance Rumely Co., Fred E. Cooper, oil field representative of the tractor division in Tulsa, has moved into larger quarters at 211 South Lansing Avenue. The new location provides four times as much floor space as the former one at 18 South Madison Avenue, with commodious showroom, stockroom, machine shop and business office.

GULF

Modern

Methods

Make

Modern

Gulf Products

the largest Atmospheric-Vacuum Still ever built.

Paraffine and Coastal Crudes

Gasoline · Lubricating Oils

Naphtha · Gas · Oils

Wax · Petroleum Coke

Cylinder · Engine · Cordage

GULF REFINING COMPANY

General Sales Offices: PITTSBURGH, PA.

Summary of Operations in All Fields for February, 1932

SUMMARY OF ALL FIELDS
Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern	133	576	21	37
Central Ohio	35	160	14	17
Lima	9	7	2	3
Indiana	11	155	6	3
Michigan	7	20	5	1
Kentucky	19	540	5	4
Illinois	2	10	1	0
Kansas	37	17,004	15	0
Oklahoma	63	76,654	17	16
North Central Texas	67	2,036	39	2
E. Cent. and E. Texas	343	29,037	14	3
East Texas gas area	3	0	2	1
West Texas	8	852	2	0
Panhandle Texas	6	1,525	2	1
Gulf Coast	62	23,203	38	0
Southwest Texas	48	6,558	20	6
North Louisiana	15	1,110	9	1
Arkansas	1	0	1	0
Mississippi	5	0	2	3
Montana	2	60	1	0
Wyoming	4	5	3	0
Colorado	3	30	2	0
New Mexico	3	14,761	1	1
Total January	885	174,303	223	99
Total December	928	169,689	177	124
Difference	143	4,614	45	25

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Eastern	41	135	176
Central Ohio	23	72	95
Lima	4	16	20
Indiana	2	59	61
Michigan	55	80	135
Kentucky	7	63	70
Missouri	0	1	1
Tennessee	0	14	14
Illinois	1	18	19
Kansas	34	113	147
Oklahoma	57	243	300
North Central Texas	48	125	173
East Central and E. Texas	249	321	570
East Texas gas field	4	29	33
West Texas	17	85	102
Panhandle Texas	14	39	53
Gulf Coast	17	88	105
Southwest Texas	25	107	132
North Louisiana	17	50	67
Arkansas	9	27	36
Mississippi	10	12	22
Alabama	2	3	5
Montana	14	47	61
Wyoming	12	62	74
Colorado	10	70	80
New Mexico	8	46	54
Utah	1	19	20
Total January	681	1,944	2,625
Total December	691	1,909	2,600
Difference	10	35	25

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

County—	Comp.	Prod.	Dry	Gas
Bryan	1	0	1	0
Comanche	1	0	1	0
Creek	14	430	2	6
Greer	1	0	0	1
Hughes	1	0	0	1
Latimer	1	0	0	1
Lincoln	1	0	1	0
Love	1	0	1	0
Muskogee	3	0	3	0
Oklahoma	11	65,781	1	0
Okmulgee	3	166	0	1
Okfuskee	1	70	0	0
Osage	1	7	0	0
Payne	1	8	0	0
Pittsburg	3	0	0	3
Pontotoc	1	150	0	0
Pottawatomie	2	927	1	0
Seminole	6	9,113	0	0
Stephens	4	0	3	1
Tulsa	3	2	1	1
Wagoner	3	0	2	1
Total February	63	76,654	17	16
Total January	63	56,497	25	11
Difference	0	20,157	8	5

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Alfalfa	0	2	2
Atoka	0	1	1
Beckham	1	5	6
Blaine	0	1	1
Caddo	0	4	4
Canadian	0	1	1
Carter	1	4	5
Coal	0	3	3
Cherokee	0	1	1
Cleveland	1	0	1
Comanche	0	2	2
Creek	5	32	37
Garfield	2	2	4
Garvin	0	1	1
Greer	0	1	1
Grady	1	0	1
Grant	1	1	2
Hughes	0	3	3
Haskell	0	2	2
Jefferson	1	1	2
Kay	0	6	6
Kiowa	0	1	1
Latimer	0	2	2
Lincoln	0	4	4
Logan	0	4	4
McIntosh	0	1	1
Marshall	1	8	9
Muskogee	5	13	18
Noble	1	8	9
Okfuskee	2	6	8
Oklahoma	12	46	58
Okmulgee	4	9	13
Osage	4	8	12
Pawnee	0	10	10
Payne	0	1	1
Pittsburg	0	2	2
Pontotoc	1	6	7
Pottawatomie	4	2	6
Roger Mills	0	2	2
Seminole	2	9	11
Stephens	3	10	13
Tulsa	2	9	11
Washita	1	2	3
Wagoner	2	7	9
Total February	57	243	300
Total January	58	250	308
Difference	1	7	8

WELLS COMPLETED

BRYAN COUNTY

8-7s-10 Childs, Bryan Oil Co. 1..... dry

COMANCHE COUNTY

14-1-9w Adkins, Crane & Aikens 1... dry

CREEK COUNTY

13-19- 8 Lowe, J. B. Grieves 10..... 60
20-19- 9 Hollingsworth, Gled Oil Co. 3 150
28-17-11 Watkins, McCurrey et al 1-A 30
22-15- 8 Wayman "A," F. R. Billingslea et al 2 140
18-14- 9 Bartlett, C. G. Tibbins 3..... 40
25-19- 8 Holmes, Gled Oil Co. 2..... gas
11-19- 9 Flinchum, Tulsa Oil Co. 2... gas
30-17- 7 Walker, A. G. Blauner et al 1 dry
10-16- 7 Williams, Magnolia Pet. Co. 9 dry
16-14- 8 Harris, J. A. Wise et al 1.... gas
29-19- 9 Johnson, Johnson Oil Ref. Co. 1 ..... gas
18-17-10 Barnett, Curtis Oil Co. 1..... gas
19-17-11 Cartwright, J. H. Wright estate 2-A 10
21-15- 8 Wilson, E. Shamblin et al 1.. gas

Wells completed 14
Production 430
Dry 2
Gas 6
Gas production 14,600,000

GREER COUNTY

1-7-22w Cliffell, Roy Good and D. M. Dowell 1 ..... gas

Gas production 5,000,000

HUGHES COUNTY

9-7-8 Narcomay, Producers & Refiners Corp. 1 ..... gas

Gas production 5,200,000

LATIMER COUNTY

17-3-22 Hembree, H. E. Dowd et al 2 gas

Gas production 1,000,000

LINCOLN COUNTY

26-17-6 Kannady, Kemp & Nunnelee 1 dry

LOVE COUNTY

27-6s-2 Cross, Batson, Starritt and Autrey 1 ..... dry

MUSKOGEE COUNTY

34-16-15 Richards, Mack Drlg. Co. 1-A dry
16-14-18 Durant, J. H. McDonald et al 4-A ..... dry
4-15-18 McIntosh, J. V. Dunbar 1.... dry

Wells completed 3
Dry 3

OKLAHOMA COUNTY

34-12-2w St. Louis, Continental Oil, Anderson & Kerr 1..... 5,959
3-11-3w Gallman, Phillips Pet. Co. 1 *6,640
2-11-3w Burss, Scott et al 1..... 508
3-11-3w Terminal, T. B. Slick estate 4 ..... †7,145
Terminal, T. B. Slick estate 5 ..... ‡9,465
34-12-3w Warsaski, Continental Oil, Anderson & Kerr 1..... §7,880
17-12-4w St. Joseph Orphanage, C. F. Cunitt, trustee 1..... dry
3-11-3w Ashcan, Phillips Pet. Co. 2 ‡16,402
10-11-3w Blevins, Westgate Oil Co. 1 §2,985
15-11-3w Classen, Phillips Pet. Co. et al 1 ..... †3,988
Everest, Phillips Pet. Co. et al 1 ..... §4,809

Wells completed 11
Production 65,781
Dry 1

*Three hours. †Six hours. ‡Eight hours. §Four hours. ¶Three and one-half hours.

OKMULGEE COUNTY

1-12-13 A. Bradford, W. B. Pine 1.. 133
1-14-14 J. Harris, Babcock Bros. 3... 30
21-16-11 Pense, William Sherry et al 1 gas

Wells completed 3
Production 166
Gas 1
Gas production 4,000,000

OKFUSKEE COUNTY

16-11-11 Holmes, H. Stekoll et al 24... 70

OSAGE COUNTY

3-25-8 P. E. Voyles 4..... 7

PAYNE COUNTY

4-18-5 Little Chief, Deep Rock Oil Corp. 1 8

PITTSBURG COUNTY

8-7-18 Mattocks, Midwestern O. & G. Co. 2 ..... gas
8-7-18 Mattocks, Midwestern O. & G. Co. 3 ..... gas
16-7-18 Church lot, Utilities Production Co. 1 ..... gas

Wells completed 3
Gas 3
Gas production 19,500,000

PONTOTOC COUNTY

32-5-5 Burk "C," Stanolind O. & G. Co. 1 150

POTTAWATOMIE COUNTY

35-7-4 Monnet, Carter Oil Co. et al 1.. 927
2-6-4 Farmer, Mid-Continent Petroleum Corp. 1 ..... dry

SEMINOLE COUNTY

3-3-5 L. Tiger, Amerada Pet. Corp. 3.1927
20-7-8 Catlett, Burk-Greis Oil Co. et al 1 1737
3-8-5 L. Tiger, Amerada Pet. Corp. 4 955
3-8-5 Hassman, Prairie O. & G. Co. 3 340
30-7-8 Davis, Empire O. & R. Co. 1...3234
3-8-5 Tiger, Pure Oil Co. 2..... 920

Wells completed 6
Production 9113

STEPHENS COUNTY

35-2s-5w Mullins, George L. Pace et al 1 ..... dry
2-2s-8w Dare, Continental Oil Co. 1.. gas
5-2s-7w Andrews, Hydrick & Hickman 1 ..... dry
35-1s-8w Thompson, Brown et al 1.... dry

Wells completed 4
Dry 3
Gas 1
Gas production 8,500,000

TULSA COUNTY

7-19-14 Cowans, A. E. Bradshaw et al 2 2
7-19-10 Cook, Holmes Drlg. Co. 1.... dry
29-16-13 Stanley, O. K. Detrick et al 1-A ..... gas

Wells completed 3
Production 2
Dry 1
Gas 1
Gas production 7,000,000

WAGONER COUNTY

26-18-15 Snake, Marrs et al 1..... gas
29-18-17 Trent, H. L. Enos et al 1... dry
7-15-17 Kernal, R. A. Godfrey 1..... dry

Wells completed 3
Dry 2
Gas 1
Gas production 2,500,000

EAST TEXAS FIELDS

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Anderson	0	0	0	0	1	1	1
Angelina	0	0	0	0	1	0	1
Bowie	0	0	0	0	0	3	3
Camp	0	0	0	0	0	1	1
Cherokee	0	0	0	0	2	2	4
Dallas	0	0	0	0	1	2	3
Delta	0	0	0	0	0	1	1
Ellis	0	0	0	0	0	3	3
Franklin	0	0	0	0	1	0	1
Gregg	180	15,347	1	0	169	145	314
Henderson	1	0	1	0	0	1	1
Hill	0	0	0	0	0	1	1
Hopkins	0	0	0	0	0	3	3
Hunt	0	0	0	0	1	1	2
Jasper	0	0	0	0	0	1	1
Kaufman	0	0	0	0	1	1	2
Lamar	0	0	0	0	1	2	3
Leon	2	0	2	0	1	1	2
Morris	0	0	0	0	0	1	1
Nacogdoches	2	0	2	0	2	6	8
Polk	0	0	0	0	1	3	4
Rains	0	0	0	0	0	1	1
Red River	1	0	1	0	1	5	6
Robertson	0	0	0	0	0	2	2
Rusk	113	9,930	2	2	40	90	130
Sabine	0	0	0	0	1	0	1
San Augustine	0	0	0	0	1	1	2
Smith	17	1,785	0	0	4	2	6
Titus	0	0	0	0	0	2	2
Upshur	24	1,785	4	0	20	13	33
Van Zandt	3	190	1	1	0	24	24
Wood	0	0	0	0	1	2	3
Total Feb.	343	29,037	14	3	249	321	570
Total Jan.	338	36,554	11	0	273	270	543
Difference	5	7,517	3	3	24	51	27

Note: Initial production based on one-hour gauge through various chokes.

WELLS COMPLETED

GREGG COUNTY

Arkansas Fuel Oil Co.'s No. 1-B McPherson through open tubing (½ hr.) 95
Arkansas Fuel Oil Co.'s No. 3 L. D. Tuttle through open tubing (½ hr.) 83
Atlantic and Waldey's No. 1 Bauder through open tubing 85
Bridwell and Fikes' No. 1 D. Lockett through ¾-in. tubing choke 78
Continental Oil Co.'s No. 3 B. C. Todd through open tubing choke 140
Cox and Hamon's No. 4 Lacy through open tubing (½ hr.) 80
Darby Petroleum Co.'s No. 2 H. W. Ritchie through ¼-in. tubing choke (¼ hr.) 30
Empire Gas & Fuel Oil Co.'s No. 2 J. C. Bumpass through 1½-in. tubing choke (½ hr.) 43
F. H. E. Oil Co.'s No. 1 D. H. Jones through 1-in. tubing choke (½ hr.).. 55
F. H. E. Oil Co.'s No. 2 W. E. Jones through 1-in. tubing choke 100
Humble Oil & Ref. Co.'s No. 7 A. Carter through 1-in. tubing choke 100
Kewanee Oil Co.'s No. 3 G. E. Adams through open tubing (½ hr.)..... 80
Magnolia Petroleum Co.'s No. 5 W. E. Jones through open tubing 180
Navarro Oil Co.'s No. 1 E. L. Walker through open tubing 118
Rosser & Pendleton's No. 3-B Saterwhite through open tubing (½ hr.).. 94
Ryan Hobson's No. 1 G. A. Mattox through ¾-in. tubing choke 80
Sakato Oil Co.'s No. 2 C. H. Moore through open tubing 120
Shasta Oil Co.'s No. 1 Campbell through 1-in. tubing choke 100
Shell Petroleum Corp.'s No. 3 G. Jones through 2-in. tubing choke (½ hr.). 83
Southland Oil Co.'s No. 1 C. Christian through 1-in. tubing choke 80
Stanolind and Simms Oil Co.'s No. 3 M. Lemaire through open tubing 189
Sun Oil Co.'s No. 5 J. W. Aiken through 1-in. tubing choke 100
Sun Oil Co.'s No. 1-B Allen Tooke through 1-in. tubing choke 100
Tidal Oil Co.'s No. 3 W. E. Jones through 1-in. tubing choke (½ hr.) 60
Tidal Oil Co.'s No. 5 Sheppard through open tubing (10 min.) 73
P. M. Wiggins' No. 1 fee through 1-in. tubing choke (½ hr.) 60
Woodley Petroleum Co.'s No. 1 K. Moseley through open tubing 50
Yount Lee Oil Co.'s No. 2-B M. Smith through 1-in. tubing choke 85
Yount Lee Oil Co.'s No. 3 H. Stephens through 1-in. tubing choke 100
Everts Drilling Co.'s No. 1 Muckelroy through various chokes, per day 100
Gulf Production Co.'s No. 11 A. Spear through ¾-in. tubing choke 112
Jamison Oil Co.'s No. 1 Johnson through ½-in. tubing choke 100
Marine Oil Co.'s No. 1 L. D. Crim through ¾-in. tubing choke (¼ hr.). 51
J. H. Gwin's No. 1 Culver through open tubing 133
Sun Oil Co.'s No. 12 Hilburn through ¾-in. tubing choke 66
Tidal Oil Co.'s No. 2 M. B. Huey through open tubing (¼ hr.) 65
Trapshooter-Reilly's No. 2 Mitchell through ⅝-in. tubing choke 85
Weaver-Crim Corp.'s No. 2 D. M. Peterson through open tubing (5 min.) ... 16
Amerada Petroleum Co.'s No. 2 McPherson through open tubing 139
Arkansas Fuel Oil Co.'s No. 4-C Lathrop through open tubing (½ hr.)..... 80
Arkansas Fuel Oil Co.'s No. 1 C. L. Taylor through open tubing (½ hr.).. 100
Cox and Hammond's No. 5 L. A. Rodden pinched through tubing, per day 100
H. W. Elliott's No. 2 J. W. Harrison through open tubing 100
Gregg Oil Co.'s No. 1-E T.&P. Ry. through 11/16-inch tubing choke (¼ hr.) 30
Gresham and Hunter's No. 1 T.&P. Ry. through ¾-in. tubing choke 160
Gulf Production Co.'s No. 5 Lacy through open tubing 110
Hankamer and Lee's No. 1 T. W. Lee through ¾-in. tubing choke 90
Invincible Oil Co.'s No. 1 W. M. Wheeler through open tubing 101
T. A. Johnson's No. 2 J. H. Victory through 1-in. tubing choke (¼ hr.).. 36
Lloyd Oil Corp.'s No. 2 B. B. Fenton pinched through tubing (24 hrs.) ... 100
F. L. Luckel's No. 1 J. B. Doby through 1-in. tubing choke (10 min.) 21
H. S. Moss' No. 1 Schultz through open tubing (½ hr.) 156
Navarro Oil Co.'s No. 3 E. L. Walker through open tubing (½ hr.) 17
N. G. Powell's No. 1 Wilhite through 1-in. tubing choke (45 min.) 100
Roeser & Pendleton's No. 3 Sherfield through open tubing (33 min.) 100
Shell Petroleum Corp.'s No. 2 Bassbor through 1-in. tubing choke 31
Simms and Stanolind Oil & Gas Co.'s No. 2 Tuttle through open tubing (¼ hr.) 45
Stanolind Oil & Gas Co.'s No. 2-A E. L. Walker through open tubing 105
Stanolind Oil & Gas Co.'s No. 11 Persons through open tubing 114
Stanolind Oil & Gas Co.'s No. 3 Harley through open tubing 110
Sun Oil Co.'s No. 2 J. A. Grey through ½-in. tubing choke 30
Sutton and Hawkins' No. 4 J. H. Whittaker through 1-in. tubing choke 100
Tidal Oil Co.'s No. 2 Lake Devernia through open tubing (20 min.) 70
Woodley Petroleum Co.'s No. 1 D. B. Harris through ¾-in. tubing choke (¼ hr.) 45
Byrd-Frost and Atlantic Prod. Co.'s No. 1 N. B. Huey through 2½-in. tubing choke 180
California Consolidated Co.'s No. 2 Barton pinched through tubing, per day. 100
Gulf Prod. Co.'s No. 10 Hilburn through ¾-in. tubing choke 95
Gulf Prod. Co.'s No. 13 A. Spear through ¾-in. tubing choke 120
Humphries et al's No. 3 A. Spear pinched through tubing, per day 100
Magnolia Petroleum Co.'s No. 4 Griffin Davis through 2-in. tubing choke and 1-inch casing choke (5 min.) 35
Magnolia Petroleum Co.'s No. 3 O. Hilburn through 2-inch tubing choke and 1-in. casing choke (5 min.) 60
Magnolia Petroleum Co.'s No. 6 B. Laird through 3-in. tubing choke and 1-in. casing choke (¼ hr.) 84
Mercury Oil Co.'s No. 1 L.&G.N. Ry. through tubing 100
Mullendore and Berry's No. 3 W. W. Elder through open tubing, per day.. 100
Pace Petroleum Co.'s No. 1 Crim-Reynolds pinched through tubing, per day 100
Producers Investment Corp.'s No. 2 J. A. Butts through 1-in. tubing choke.. 60
Frank Russell's No. 1 Stone ..... abd
Sam P. Shelburne's No. 2 Crim Mercantile through open tubing 75
Shell Petroleum Corp.'s No. 4 Bates through pinched tubing, per day..... 100

Shell Petroleum Corp.'s No. 6 Knowles through tapered tubing (⅛ hr.)..... 22
Sun Oil Co.'s No. 1 Calvin Brown through open tubing 176
Sun Oil Co.'s No. 1 J. E. Rollins through open tubing 130
Tidal Oil Co.'s No. 4 Bivens through open tubing 240
Tidal Oil Co.'s No. 2 Lacy through open tubing and casing 540
C. J. Webster Oil & Gas Co.'s No. 1 Martin pinched through tubing, per day 100
Wells and Gann's No. 2 M. Charles through pinched tubing, per day 100
Arkansas Fuel Oil Co.'s No. 3 Snoddy through open tubing (½ hr.) 85
Arkansas Fuel Oil Co.'s No. 3 Stephens through open tubing (½ hr.) 80
Arkansas Fuel Oil Co.'s No. 2 Walker through open tubing (½ hr.) 75
Atlantic Prod. Co.'s No. 4 McBee through 1-in. tubing choke 75
Atlantic et al's No. 2 T. W. Lee through ⅝-in. tubing choke 64
Bob Bashare et al's No. 1 B. Johnson through ⅝-in. tubing choke (½ hr.).. 37
Barnsdall and Sun Oil Co.'s No. 5 Bingham through 1-in. tubing choke 147
Byrd-Frost, Inc.'s No. 1 J. J. Repond through ⅝-in. tubing choke 131
Columbia Oil & Gas Co.'s No. 2-A J. B. Doby through open tubing (½ hr.) ... 100
Columbia Oil & Gas Co.'s No. 2 J. McGrede through 1-in. tubing choke.... 110
Deep Rock Oil Co.'s No. 2 A. Tooke through ⅝-in. tubing choke 100
Dillard Oil Co.'s No. 5 W. E. Jones through ⅝-in. tubing choke (⅛ hr.).. 50
James Burrow's No. 1 J. M. Whittle through 1-in. tubing choke 90
Empire Gas & Fuel Oil Co.'s No. 3 Bumpass through open tubing (¼ hr.) 43
F. H. E. Oil Co.'s No. 4 J. Flemster through 1-in. tubing choke and ⅛-in. tubing choke 30
Glasscock Bros.' No. 1 S. G. Mattox through 1-in. tubing choke (⅛ hr.).. 30
Gulf Prod. Co.'s No. 3 Anderson through ⅝-in. tubing choke 120
Humble Oil & Ref. Co.'s No. 7 T. B. Harris through ⅝-in. tubing choke .. 65
Humble Oil & Ref. Co.'s No. 6 A. L. Hughes through ⅝-in. tubing choke (⅛ hr.) 80
Leckner and Hubbard's No. 1 F. Jones through open casing and tubing 55
Van Hatcher et al's No. 1 John Boyd through ⅝-in. tubing choke 90
Shell Petroleum Corp.'s No. 4 G. Jones through open tubing (⅛ hr.) 15
Jr. Smith et al's No. 2 Doby through open tubing (10 min.) 12
Stanolind and Simms Oil Co.'s No. 6 Fonville through open tubing 176
Superior Oil Co.'s No. 9 Ingram through open tubing 184
Tidal Oil Co.'s No. 2 Arch Davis through open tubing (¼ hr.) 70
Tidal Oil Co.'s No. 4 Jones through open tubing (20 min.) 73
Yount Lee Oil Co.'s No. 4-A Davis through ⅝-in. tubing choke 83
Yount Lee Oil Co.'s No. 3 J. L. McGrede through 1-in. tubing choke 88
H. L. Barrett's No. 1 J. S. Bean pinched through tubing, per day 75
Gulf Prod. Co.'s No. 12 S. Hilburn through ⅝-in. tubing choke 90
Humble Oil & Ref. Co.'s No. 14-B S. S. Laird, through pinched tubing, per day 75
C. L. McMahon's No. 1 J. King through open 2-in. tubing choke 78
Rajo Oil Corp.'s No. 1 A. C. McComie through ⅝-in. tubing choke 50
Paul L. Miller's No. 2 Ben Laird through pinched tubing, per day 75
Moore et al's No. 1 J. W. James through pinched tubing, per day 75
Pelican Natural Gas Co.'s No. 4 Spear through 2-in. tubing (25 min.) 35
Petroleum Finance Co.'s No. 3 Lacy through 1-in. tubing choke (¼ hr.).. 42
Shell Petroleum Corp.'s No. 15 Watson through tapered tubing 18
Steen Drilling Co.'s No. 5 W. D. Lacy through 1-in. tubing choke (¼ hr.).. 36
Stroube and Stroube's No. 1 Powder Horn through pinched tubing, per day 75
Travis and Wair's No. 1 A. B. Loughridge through pinched tubing, per day 75
Walters et al's No. 1 J. A. Knowles through 1½-in. tubing choke (¼ hr.) 65
Alma Petroleum Co.'s No. 2 C. D. Cox through ⅝-in. tubing choke 30
Amerada Petroleum Corp.'s No. 2 Killingsworth through 1-in. tubing choke (⅛ hr.) 75
Amerada Petroleum Corp.'s No. 5 J. M. Tuttle through 1-in. tubing choke (⅛ hr.) 77
Arkansas Fuel Oil Co.'s No. 2-B M. B. McPherson through open tubing (¼ hr.) 49
Cal-Pet Corp.'s No. 2 J. M. Tuttle through ⅝-in. tubing choke 150
Cox and Hamon's No. 5 Lacy through open tubing (¼ hr.) 35
Cox and Huffman's No. 1 Johnson through ⅝-in. tubing choke (¼ hr.). 40
Darby Petroleum Co.'s No. 2 Clemmens through open tubing 30
Darby Petroleum Co.'s No. 3 Ritchey through ½-in. tubing choke 35
Gilcrease Oil Co.'s No. 3 A. Christian through tubing 85
Shilce Oil Co.'s No. 1 White Oak School through 1-in. tubing choke 90
Kilgore-Barton and Hanson's No. 1-B L. M. Colburn through 11/16-in. tubing choke (10 min.) 18
Leckner and Hubbard's No. 1 L. Y. and A. J. Tuttle through ½-in. tubing.. 30
Leckner and Hubbard's No. 2 J. M. Tuttle through 1-in. tubing choke (½ hr.) 30
Lucy Petroleum Co.'s No. 2 McHenry Lobe through 1-in. tubing choke 155
London Petroleum Corp.'s No. 1 I. J. Sturvinant through 1-in. tubing choke (½ hr.) 30
J. D. Stock and Lyon Oil & Gas Co.'s No. 2 J. S. Doby through 1-in. tubing choke 90
Magnolia Petroleum Co.'s No. 2 F. M. Fonville through open tubing 242
Magnolia Petroleum Co.'s No. 4 Tuttle through 1-in. tubing choke 150
J. H. Massey's No. 3 M. Finn through 1-in. tubing choke 120
Perkins et al's No. 1 McGrede through 11/16-in. tubing choke 95
Petroleum Purchasing Co.'s No. 2 Sheppard through 1-in. tubing choke (½ hr.) 75
Pilot Oil Co.'s No. 1 J. C. Bumpass through open tubing (20 min.) 75
Red Star Oil Co.'s No. 2 M. Lemaire through ⅝-in. tubing choke (50 min.) 104
Shell Petroleum Corp.'s No. 3 J. H. Slaton through 1-in. tubing choke (⅛ hr.) 27
Shell Petroleum Corp.'s No. 4 Slaton through tapered tubing (⅛ hr.) 30
Smith and Merriwinkle's No. 4 Bauknight through 1-in. tubing choke 75
Stanolind and Simms Oil Co.'s No. 2 J. H. Boles through ⅝-in. tubing choke (⅛ hr.) 75
Stanolind Oil & Gas Co. et al's No. 2 H. Key through open tubing (¼ hr.) ... 47
Sun Oil Co.'s No. 6 J. W. Alkin through 1-in. tubing choke 120
Sun Oil Co.'s No. 7 Satterwhite through open tubing 94
Yount Lee Oil Co.'s No. 4 L. E. Orms through 11/16-in. tubing choke 95
Yount Lee Oil Co.'s No. 2 E. N. Wadley through 11/16-in. tubing choke 84
E. and F. Petroleum Corp.'s No. 1 M. S. Jackson through 1-in. tubing choke... 100
Arkansas Fuel Oil Co.'s No. 1 G. Donaldson through ⅝-in. tubing 125
Central Com. Oil Co.'s No. 1 A. A. King through open tubing 60
Gulf Prod. Co.'s No. 6 A. C. Alexander through ⅝-in. tubing choke 100
Gulf Prod. Co.'s No. 5 G. Culver through ⅝-in. tubing choke 52
Houston Oil Co.'s No. 2 J. S. Elder through choked tubing (¼ hr.) 25
Houston and Heep Oil Co.'s No. 2-A Huey through 1-in. tubing (¼ hr.).. 42
Sells Petroleum Co.'s No. 1 Williams through ⅝-in. tubing and 2½-in. tubing choke 20
Louisiana Oil & Ref. Co.'s No. 2 W. C. Griffin through ⅝-in. tubing choke... 115
Perkins and Hinds' No. 1 Bean through pinched tubing, per day 75
Magnolia Petroleum Co.'s No. 4 A. Hicks through 1-in. tubing choke ... 154
Magnolia Petroleum Co.'s No. 7 Ben Laird through 3-in. tubing choke on line and 1-in. tubing choke 57
Harry Moss' No. 3 Marshall through ⅝-in. tubing choke (¼ hr.) 20
Pilot Oil Co.'s No. 3 Johnson through pinched tubing, per day 75
Sneed et al's No. 1 Griffin Davis through ⅝-in. tubing choke (¼ hr.) 35
Stanolind Oil & Gas Co.'s No. 1 A. A. Lockhart through 1½-in. tubing choke (10 min.) 20
Tidal Oil Co.'s No. 5 M. C. Barton through open tubing (5 min.) 208
Wheelock and Collins' No. 2 Clayton heirs through ⅝-in. tubing choke.... 110

Initial production 16,347
Abandoned 1
Wells completed 180

HENDERSON COUNTY

Alma Petroleum Co.'s No. 1 T. B. Woo-ford ..... abd

Wells completed 1
Abandoned 1

LEON COUNTY

Sun Oil Co.'s No. 2 Grayson ..... abd
Cooper et al's No. 1 Lynch ..... abd

Wells completed 2
Abandoned 2

NACOGDOCHES COUNTY

Bunte, tr., No. 1 A. F. Boatman..... abd
G. A. Teague's No. 1 Matthews ..... abd

Wells completed 2
Abandoned 2

RED RIVER COUNTY

Droopleman and Bunds' No. 1 Cunningham ..... abd

Wells completed 1
Abandoned 1

RUSK COUNTY

Everts Drilling Co.'s No. 3 Crews through ¼-in. tubing choke (2½ hrs.) 100
Gulf Prod. Co.'s No. 4 Florence, through ⅝-in. tubing choke 120
Humble Oil & Ref. Co.'s No. 1 Mrs. V. E. Reed through ⅝-in. tubing choke.. 32
Marine Oil Co.'s No. 5 Bean through various chokes, per day 100
Shasta Oil Co.'s No. 1 H. Alexander through 2-in. tubing (½ hr.) 20
Arkansas Fuel Oil Co.'s No. 6 E. M. Bealls through open tubing 140
S. P. Borden's No. 1 T. O. Mason through open tubing 200
Roy Bryant's No. 1 Daisy Bradford through open tubing 40
Barney Cockburn's No. 3 Nathan Green through ⅝-in. tubing choke (¼ hr.). 13
Golding and Murchison's No. 6 Kinney through open tubing 80
Grayburg Oil & Ref. Co.'s No. 4 Kangerga through open tubing 155
H. L. Hunt's No. 4 Daisy Bradford flowing by heads, pinched, per day.. 100
Humble Oil & Ref. Co.'s No. 3 C. A. Brightwell through ⅝-in. tubing choke (½ hr.) 51
Humble Oil & Ref. Co.'s No. 3-B Ida Holt through ⅝-in. tubing choke (½ hr.) 44
Humble Oil & Ref. Co.'s No. 3 T. M. Wooley through ⅝-in. tubing choke (½ hr.) 53
Lyons et al's No. 1 Arnold through open tubing 80
M. H. McMurray's No. 1 Blackwell.... abd
Magnolia Petroleum Co.'s No. 1 S. W. Moore through open tubing (5 min.). 69
Mid-Kansas Oil & Gas Co.'s No. 2 J. F. Mason through open tubing 240
Pitzer and West's No. 1 Mittie Giles through open tubing 60
R. M. V. Oil Co.'s No. 2 J. B. Wilson through open tubing (½ hr.) 80
Rogers et al's No. 1 L. J. Pinkston through open tubing 100
The Texas Company's No. 5 L. J. Pinkston through open tubing 120
Tidal Oil Co.'s No. 5 Irion through 2-in. tubing choke (10 min.) 26
Cordova Union Oil & Gas Co.'s No. 7 J. S. Bean through pinched tubing, per day 100
Peyton Bros.' No. 1 Perry, 59,000,000 ft gas
Empire Gas & Fuel Oil Co.'s No. 4 C. O. Christian through 2-in. tubing choke (⅛ hr.) 96
Gulf Prod. Co.'s No. 5 A. Laird through ⅝-in. tubing choke 102
Magnolia Petroleum Co.'s No. 3 S. E. Brox through 3-in. tubing choke and ⅝-in. casing choke (5 min.) 37
Mercury Petroleum Co.'s No. 1 Warren through open tubing 56
Roberts et al's No. 3 C. E. Christian through ⅝-in. tubing choke 132
Stanolind Oil & Gas Co.'s No. 5 C. O. Christian through 2-in. tubing choke.. 100
Tulsa Oil Co.'s No. 1 J. R. Irion through ⅝-in. tubing choke (3 hrs.) 100
Blackwell Oil & Gas Co.'s No. 5 Samp Stone through open tubing 150
Droopleman Dev. Co.'s No. 4 F. J. Cox through open tubing 78
East Shore Oil Co.'s No. 3 Fox through tubing (⅛ hr.) 17
Stewart & Duffy's No. 1 Florence Gibson through ⅝-in. tubing choke (¼ hr.).. 25
Golding and Murchison's No. 5 Fair through open tubing 168
Humble Oil & Ref. Co.'s No. 8 J. E. Glover through ⅝-in. tubing choke (½ hr.) 50
Humble Oil & Ref. Co.'s No. 1-B H. A. Piercy through ⅝-in. tubing choke (½ hr.) 57
Humble Oil & Ref. Co.'s No. 2 E. S. Thrash through ⅝-in. tubing choke.. 66
Humble Oil & Ref. Co.'s No. 8 Wheelis through tubing choke (½ hr.) 54
M. & G. Oil Co.'s No. 1 Moore et al through 1-in. tubing choke (¼ hr.).. 25
Mid-Kansas Oil & Gas Co.'s No. 9 E. E. Moore through open tubing 160
Overton Refining Co.'s No. 1 Fee through open tubing (½ hr.) 65
Sayre Petroleum Co.'s No. 3 Samp Stone through open tubing 140
Sinclair Oil & Gas Co.'s No. 21 Kinney through open tubing (½ hr.) 75
Sonbar Oil Co.'s No. 3 Finney through open tubing 70
Stanolind and Pure Oil Co.'s No. 1 R. A. Moore through tubing 130
Sun Oil Co.'s No. 3-B Schuler through tubing 29
Tidal Oil Co.'s No. 2 Flannagan through tubing and casing (10 min.) 57
Tidal Oil Co.'s No. 6 L. J. Pinkston through open tubing (10 min.) 21
Grady Vaughan's No. 2 G. W. Reagan through tubing 90
Ward Oil Co.'s No. 9 E. S. Thrash through tubing 90
Gulf-Devonian's No. 3 Christian through ⅝-in. tubing choke 114
Humble Oil & Ref. Co.'s No. 2 C. W. Moore through ⅝-in. tubing choke .. 48
Humble Oil & Ref. Co.'s No. 2-A J. T. Sexton through ⅝-in. tubing choke.. 32
Stanolind Oil & Gas Co.'s No. 2 Terrell through open 2-in. tubing choke 139
C. L. Archer's No. 1 J. H. Steward through 1¼-in. tubing choke (20 min.) 35
Bailey and Trimble's No. 1 E. B. Alford put on pump, per hour 5
Blackwell Oil & Gas Co.'s No. 4 W. P. Moore through open tubing (17 min.) 60
Deep Rock Oil Co.'s No. 5 Stovall through open tubing (⅛ hr.) 60
R. W. Fair's No. 2 Fair through open tubing (⅛ hr.) 65
Falcon Oil Co.'s No. 2 Perkins through open tubing (⅛ hr.) 80
Gulf Prod. Co.'s No. 5 Cashen through ⅝-in. tubing choke 95
Humble Oil & Ref. Co.'s No. 3-B Silvey through ⅝-in. tubing choke 81
H. L. Hunt's No. 1-B H. C. Maxwell through open tubing 165
Lion Oil & Ref. Co.'s No. 6-A Brooks through open tubing 100
Lion Oil & Ref. Co.'s No. 5-B Brooks through open tubing 40
L. J. McMurray et al's No. 2 R. W. Fair through ⅝-in. tubing 65
Marr Drlg. Co.'s No. 1 Wheelis through ⅛-in. tubing 74
Mid-Kansas Oil & Gas Co.'s No. 3 Joe Mills through open tubing 160
Oliphant's No. 2 Alford through 1-in. tubing choke (⅛ hr.) 37
I. P. O'Neal's No. 1 W. O. Alford through 2-in. tubing choke 150
Phillips and Bennett et al's No. 1 E. B. Alford through open tubing 10
Smith and Torrans' No. 3 H. Torrans through 1½-in. tubing choke (¼ hr.) 25
Sullivan and Burch's No. 1 E. B. Alford by heads 18
Sun Oil Co.'s No. 3 S. A. Selman through open tubing 64
Ward Oil Co.'s No. 4 J. M. Finney through tubing 66
Carl G. Willie's No. 2 S. E. Sanders through open tubing (½ hr.) 65
Everts Drilling Co.'s No. 1 Beasley, per day, pinched 75
Gulf Prod. Co.'s No. 6 Florence through ⅝-in. tubing choke 95
Humble Oil & Ref. Co.'s No. 3 M. Robertson through ⅝-in. tubing (½ hr.). 42
Kirby Petroleum Co.'s No. 2 Rettick through open tubing (45 min.) 100
Lewis Prod. Co. and Selby Oil & Gas Co.'s No. 3 F. C. Pegues through pinched tubing, per day 75
Shell Petroleum Corp.'s No. 7 W. P. Moore through tapered tubing (½ hr.) 18
Stroube and Black's No. 2 Jernigan through pinched tubing, per day 75
Tidal Oil Co.'s No. 4 Jack Bean through 2-in. tubing choke 125
Arrow Drilling Co.'s No. 2 L. B. Rollins through 2½-in. tubing on 2-in. lead line 135
Aston Oil Co.'s No. 3 J. R. Alford through 2-in. tubing choke 160
Big Indian Oil Co.'s No. 2 Deason through open casing 155
S. Brackman's No. 1 W. O. Alford through open tubing (40 min.) 90
Coombs' No. 5 Stone through open tubing 190
Gulf Prod. Co.'s No. 3 S. B. Stone through ⅝-in. tubing choke 65
Humble Oil & Ref. Co.'s No. 1 E. W. Naulls through ⅝-in. tubing choke .. 54
Humble Oil & Ref. Co.'s No. 2 F. F. Wooster through ⅝-in. tubing choke. 76
M. H. McMurray's No. 1-A Blackwell through open tubing (20 min.) 60
Jim McMurray's No. 1 Fair through open casing and tubing 372
Mid-Kansas Oil & Gas Co.'s No. 1 Grissom through open tubing 175
Mid-Kansas Oil & Gas Co.'s No. 2 J. F. Mason through open tubing 190
Mid-Kansas Oil & Gas Co.'s No. 10 R. E. Moores through ⅝-in. tubing choke 125
Albert Nathan's No. 1 Deason through ⅝-in. tubing choke 40
Olsen Bros.' No. 3 J. S. Power through open tubing 245
Ortiz Oil Co.'s No. 2 H. M. Hale ..... abd
Phillips et al's No. 1 L. J. Pinkston.... abd
Pilot Oil Co.'s No. 3 M. A. Thrash through 1½-in. tubing choke (45 min.) 189
R. M. V. Oil Co.'s No. 6 J. A. Birdwell through open tubing 165
Stanolind Oil & Gas Co.'s No. 3-B Schuler through open tubing 75
Stanolind and Pure Oil Co.'s No. 1 Rass Lacy ..... gas
C. H. Tautenhahn et al's No. 1 Camp ..... No gauge
The Texas Company's No. 1 W. W. Henery through ⅝-in. tubing choke 106
Thompson et al's No. 1 Alford through open tubing, by heads (5 hrs.) 65
Welch et al's No. 1 Camp, pumping, per day 275

Initial production 9930
Wells completed 113
Abandoned 2
Gas 2

SMITH COUNTY

Dumas Petroleum Co.'s No. 1 Brooks through open tubing (⅛ hr.)..... 65
Graham Bros.' No. 1 S. S. Cooke through ⅝-in. tubing choke 112
Mid-Kansas Oil & Gas Co.'s No. 2 J. H. Sharp through open tubing 30
C. B. Bunte, Inc.'s No. 3 I. J. Smith through open tubing 90
Gant and Wegener's No. 1 Sebe Stone through open casing (20 min.) 96
Hardly Able Oil Co.'s No. 1 Cooke through open tubing (½ hr.) 80
W. B. Hinton's No. 1 Mayfield through open tubing 200
Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Sharp through open tubing 220
Mid-Kansas Oil & Gas Co.'s No. 5 M. L. Thompson through open tubing.... 240
Sinclair Oil & Gas Co.'s No. 2 Amanda Wiley through 1-in. tubing choke (½ hr.) 50
Sun Oil Co.'s No. 4 E. O. Henson through open casing 92
Sun Oil Co.'s No. 8 O. W. Knight through open tubing 85
Arcadia Oil & Ref. Co.'s No. 1-B Green through open tubing (½ hr.) 85
East Texas Finance Co.'s No. 1 S. S. Cooke through open tubing (½ hr.).. 99
E. R. Liner's No. 1 Wolford through open tubing (⅛ hr.) 75
London Petroleum Corp.'s No. 1 S. S. Cooke through 1-in. tubing choke (½ hr.) 50
Dozier et al's No. 1 S. S. Cooke through open tubing (20 min.) 125

Initial production 1785
Wells completed 17

UPSHUR COUNTY

Cal-Pet Corp.'s No. 5 J. N. Taylor through 1-in. tubing choke 135
Hawkeye Petroleum Corp.'s No. 1 H. Fenton through choked tubing, per day 100
Humble Oil & Ref. Co.'s No. 1 E. W. Smith through ⅝-in. tubing choke .. 96
Magnolia Petroleum Co.'s No. 15 J. W. Free through ⅝-in. tubing choke 108
Cal-Pet Corp.'s No. 2 Stinchomb through ⅝-in. tubing choke 65
Danciger Oil & Ref. Co.'s No. 1 Stinchomb through tubing 65
Humble Oil & Ref. Co.'s No. 7 G. W. Johnson through ⅝-in. tubing choke 77
Magnolia Petroleum Co.'s No. 8 R. A. Alkin through ⅝-in. tubing choke ... 126
Steen Drilling Co. and Shell Petroleum Corp.'s No. 1 J. F. Phillips through open tubing (¼ hr.) 20
Fleetborn Oil Co.'s No. 3 J. K. Edward through open tubing (½ hr.) 80
Humble Oil & Ref. Co.'s No. 1 J. T. Fuller through ⅝-in. tubing choke .. 50
Magnolia Petroleum Co.'s No. 4 N. W. Blackwell through ⅝-in. tubing choke 108
Pace and Mitcham's No. 2 Adkins through tubing (24 hrs.) 180

abinas Petroleum Co.'s No. 6 C. T. M. Collins through ¾-in. tubing choke.. 73
er Oil Co.'s No. 2 Ramey pinched through tubing, per day 75
A. Woods et al's No. 2 A. J. Sanders through ¾-in. tubing choke 90
ranfill and Reynolds' No. 1 Milton Rash, by heads, estimated 125
nnigan's No. 1 D. F. Guest ..... abd
lot Oil Co. and Sneboid's No. 1 J. D. Ray ..... abd
tanolind Oil & Gas Co.'s No. 1 Newson abd
illett-Tarr and Potters' No. 1 D. A. Iron ..... abd
umble Oil & Ref. Co.'s No. 6 L. D. Smith through ¾-in. tubing choke .. 74
ancho Oil Corp.'s No. 4 Moyers through open tubing (½ hr.) 48
abinas Oil Co.'s No. 9-C Collins through 1-in. tubing choke 90

Initial production 1785
Wells completed 24
Abandoned 4

VAN ZANDT COUNTY

A. A. Phillips' No. 1 C. W. Morris .... abd
ure Oil Co.'s No. 9 F. B. Smith through 11/16-in. tubing choke 190
he Texas Co.'s No. 4 R. V. White..... gas

Wells completed 3
Initial production 190
Abandoned 1
Gas 1

EAST TEXAS GAS FIELD

BORDER COUNTIES
Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rgs.	Dlg.	Ttl.
Bowie	0	0	0	0	3	3	
Camp	1	0	1	0	0	0	
Cass	0	0	0	0	0	7	7
Harrison	0	0	0	0	1	1	2
Marion	0	0	0	0	0	1	1
Panola	1	0	0	1	3	5	8
Red River	0	0	0	0	0	2	2
Shelby	1	0	1	0	0	10	10
Total Feb.	3	0	2	1	4	29	33
Total Jan.	3	0	2	1	5	30	35
Difference	0	0	0	0	1	1	2

*Gas production: Panola, 1,500,000 ft.

WELLS COMPLETED
PANOLA COUNTY

D. B. Lewis Survey, Werner, United Prod. Co. 11 ..... gas

Gas production 1,500,000

SHELBY COUNTY

A. H. English Survey, Windham, United North & South Prod. Co. 1 ..... dry

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry
Barton	2	0	2
Butler	2	30	1
Cowley	5	1,910	1
Ellsworth	1	1,717	0
Greenwood	5	85	2
Jefferson	1	0	1
Kingman	1	260	0
Harvey	1	114	0
McPherson	8	9,594	1
Marshall	1	0	1
Morris	1	0	1
Reno	1	200	1
Rice	2	0	2
Russell	1	0	1
Sedgwick	4	3,094	1
Stafford	1	0	1
Total February	37	17,004	15
Total January	42	13,980	11
Difference	5	3,024	4

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Barber	0	1	1
Barton	0	2	2
Bourbon	0	1	1
Butler	1	1	2
Chase	1	1	2
Clark	0	1	1
Coffey	0	2	2
Cowley	3	16	19
Dickinson	0	1	1
Ellis	0	1	1
Ellsworth	3	5	8
Finney	0	1	1
Ford	0	2	2
Greenwood	0	12	12
Graham	0	1	1
Harvey	0	2	2
Kingman	0	1	1
McPherson	12	28	40
Marion	0	2	2
Morris	2	4	6
Morton	0	1	1
Osage	0	1	1
Phillips	1	0	1
Rawlins	0	1	1
Reno	2	0	2
Rice	2	3	5
Rush	1	1	2
Russell	2	2	4
Saline	0	1	1
Sedgwick	3	8	11
Sheridan	0	1	1
Stafford	1	1	2
Stevens	0	1	1
Sumner	0	3	3
Trego	0	1	1
Washington	0	1	1
Woodson	0	2	2
Total February	34	113	147
Total January	30	130	160
Difference	4	17	13

WELLS COMPLETED
BARTON COUNTY

13-18-12w Boertz, Syndicate Oil Co. and Miller 1 ..... dry
12-20-11w Berscheidt, Midwest Ref. Co. 8 ..... dry

BUTLER COUNTY

25-25-4 Jones, Bennett & Abel 1..... dry
24-27-4 Holliday, Blaksley & Wentz 2 30

COWLEY COUNTY

22-32-4 Fent, Wakefield et al 1..... 450
Bennett, Deal et al 1..... 240
Winfield, Roth & Faurot 4... 920
10-32-5 Moffett, Sooby et al 1..... dry
22-32-4 Cavitt, Roth & Faurot 1..... 300

Wells completed 5
Production 1910
Dry 1

ELLSWORTH COUNTY

1-17-10w Straiman, J. Robertson et al 1 1717

GREENWOOD COUNTY

35-23-11 Edwards, Syndicate Oil and Phillips Pet. Co. 2..... 10
31-23-12 Nesbit, Ferrell & McCullough 1 ..... dry
22-23-11 Bullion, Simmons and The Texas Company 1..... dry
15-22-12 Boles, Prairie O. & G. Co. 3 45
36-24-12 McConnoughty, Marcus et al 1 30

Wells completed 5
Production 85
Dry 2

JEFFERSON COUNTY

10-11-18 Stiles, Anderson et al 1..... dry

KINGMAN COUNTY

30-27-10w Miles, Skelly Oil Co. 1.... 264

HARVEY COUNTY

20-22-3w Fee, F. H. Hollow 1..... 114

McPHERSON COUNTY

20-19-1w Kaegi, Darby Pet. Corp. et al 4 486
21-19-1w Lively, Shawver and Shell Pet. Corp. 2 100
24-19-2w Miller, Lario Oil Co. and Shell Pet. Corp. 2.....1029
36-19-2w Koehn, Olsen Drlg. Co. and Shell Pet. Corp. 4..... *90
35-19-2w Decker "B," Dickey Oil Co. 1.5200
36-19-2w Koehn, Wakefield and Shell Pet. Corp. 1 1417
7-20-1w Winn, Palmer, Phillips and Shell Pet. 2 1278
28-19-2w Johnson, Stanolind O. & G. Co. and Olsen Drlg. Co. 1 dry

Wells completed 8
Production 9594
Dry 1

*Eighteen hours.

MARSHALL COUNTY

13-2-6 Kunkel, Blaser et al 1..... dry

MORRIS COUNTY

5-17-7 Wycoff, Allender et al 1..... dry

RENO COUNTY

23-23-4w Blake, Shell Pet. Corp. and Continental Oil Co. 1..... 200

RICE COUNTY

10-21-6w Brown, Mid-Field Oil & Royalty Co. 1 ..... dry
2-21-6w Walsten, Allison & Fitzwilliams 1 ..... dry

RUSSELL COUNTY

28-15-13w Rude, Signal Oil Co. et al 2 dry

SEDGWICK COUNTY

18-27-2 Fee, E. B. Shawver 1..... 25
14-26-2 Hamant, Gypsy Oil Co. 5....2469
17-27-2 Vickers, Magnolia Pet. Co. 3.. dry
19-27-2 Trustee, Fisher & Lauck 3.... 600

Wells completed 4
Production 3094
Dry 1

STAFFORD COUNTY

11-24-13w Gray, Rosenthal et al 1.... dry

TEXAS PANHANDLE

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	1	0	1	0
Cochran	1	0	1	0
Gray	3	1,525	0	0
Moore	1	0	0	1
Total February	6	1,525	2	1
Total January	14	1,504	0	6
Difference	8	21	2	5

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Dlg.	Ttl.
Carson	4	0	3	7
Gray	3	5	10	18
Hutchinson	1	2	4	7
Moore	5	1	4	10
Wheeler	0	1	1	2
Miscellaneous	1	5	3	9
Total February	14	14	25	53
Total January	16	17	12	45
Difference	2	3	13	8

WELLS COMPLETED
CARSON COUNTY

S. B. Burnett-P, Texoma Natural Gas Co. 1 .....junk

COCHRAN COUNTY

W. A. Myrick, Penn Oil Co. 1..... dry

GRAY COUNTY

A. Chapman, Quick Sand Oil Co. 1.... 895
J. S. Morse-B, Smith & Ash 3..... 150
J. E. Williams, The Texas Company 4 (second completion) 200
William Jackson (North), Skelly Oil Co. 5 (second completion)..... 120
H. Schaffer, Skelly Oil Co. 28..... 480

Wells completed (new) 3
Production (new) 1525

MOORE COUNTY

J. T. Sneed-P, Texoma Natural Gas Co. 2 ..... gas

Gas production 14,500,000

NORTH CENTRAL TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Archer	13	612	5	0
Brown	2	25	1	0
Callahan	3	20	2	0
Eastland	1	0	1	0
Erath	1	0	0	1
Fannin	1	0	1	0
Montague	1	185	0	0
Palo Pinto	3	70	1	1
Parker	1	0	1	0
Shackelford	1	0	1	0
Throckmorton	1	0	1	0
Wichita	6	35	3	0
Young	33	1,089	22	0
Total February	67	2,036	39	2
Total January	43	1,596	24	0
Difference	24	440	15	2

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Dlg.	Ttl.
Archer	12	6	6	24
Brown	3	6	3	12
Callahan	0	1	2	3
Coleman	3	4	2	9
Cooke	3	1	1	5
Clay	0	1	0	1
Eastland	1	2	4	7
Erath	0	1	0	1
Jack	0	4	1	5
Palo Pinto	3	12	4	19
Shackelford	2	1	2	5
Stephens	0	3	3	6
Throckmorton	3	1	1	5
Wichita	3	2	7	12
Wilbarger	1	2	3	6
Young	12	4	17	33
Miscellaneous	2	9	9	20
Total February	48	60	65	173
Total January	47	46	75	168
Difference	1	14	10	5

WELLS COMPLETED
ARCHER COUNTY

L. F. Wilson 5-A, Deep Oil Dev. Co. 3 103
A. P. Nichols, George L. Kelly 1..... dry
L. L. Hudson, F. T. Johnson 2..... dry
Falls County school land (Tipkin), Perkins & Cullum 2 75
Falls County school land (Tipkin), Perkins & Cullum 3 60
Falls County school land (Tipkin), Perkins & Cullum 4 70
L. F. Wilson, Gohlke & Pet. Prod. Co. 1 dry
Herron, Beer & Kirkwood 1 ..... dry
S. Wilson, M. M. Bradley et al 1..... dry
Green, Bridwell Oil Co. 6 75
Falls County school land-D, Continental Oil Co. 2 118
Falls County school land (Tipkins), Perkins & Cullum 5 100
Logan, United Prod. Co. 1 11

Wells completed 13
Production 612
Dry 5

BROWN COUNTY

J. W. Newton, Warren et al 2..... 25
Belvin, P. K. French et al 8..... dry

CALLAHAN COUNTY

J. C. McDermitt, S. E. Colgin et al 1 dry
O. E. Radford, Guffy & Perry 1..... 20
Cora Grisham, Hart & Bros. 2..... dry

Wells completed 3
Production 20
Dry 2

EASTLAND COUNTY

N. J. Ramsower, John Fail 1..... dry

ERATH COUNTY

Canfield heirs, Goodwin et al 1..... gas

Gas production 4,284,000

FANNIN COUNTY

H. E. Morgan et al, Ed. V. Parsons 1 dry

JACK COUNTY

Patterson, P. A. Rundell et al 1..... .....Location temp. abd.

MONTAGUE COUNTY

Tucker, Bridwell Oil Co. 1..... 185

PALO PINTO COUNTY

T. R. Ennis, Brazos River Gas Co. 2... gas
W. Hart, Ashe Synd. and Texas Fidelity Co. 3 ..... dry
E. B. Ritchie, Prairie O. & G. Co. 1... 70

Wells completed 3
Production 70
Dry 1
Gas 1
Gas production 5,000,000

PARKER COUNTY

Williams & Pickens, Cooke & Muller 1 dry

SHACKELFORD COUNTY

W. G. Webb, Cross & Caskin 1..... dry

THROCKMORTON COUNTY

McKelchan, John Cos and Henderson 2 dry

WICHITA COUNTY

Waggoner Bros., Culbertson Co. 73..... dry
Foster & Allen, W. R. Fullerton 9 (location temporarily abd.)..... abd
Dewey Hobson, Jeffers Gilchrist et al 1 dry
Sam Kelly et al, Holbrock & Woods 1 dry
Overall, F. C. Baldwin 3..... 5
Overall, F. C. Baldwin 4..... 5
Munger, C. W. Clark 2..... 25

Wells completed 6
Production 35
Dry 3

YOUNG COUNTY

J. F. Larimore, King Royalty Co. 35.. 438
S. R. Jeffery-B, Texas Co. and McKanna 7 78
J. F. Larimore, United Producers Co. 4 dry
D. L. Wolf, D. L. Wolf 1..... 20
V. Swain, Wooten & Reed 2..... dry
J. H. McLaren-C et al, Christie Bros. 2 20
R. M. Williams-C, Long & Wolf 2 ... 55
Jeffery-D, Floyd Ard 1..... dry
Morrison heirs, W. E. Bernhard 1..... dry
Hawkins, Bridwell Oil Co. 1..... dry
Routon, Bridwell Oil Co. 1..... dry
Jeffery, Ewing et al 1..... dry
Dunnagan, Fain-McGaha Oil Corp. 1.. dry
Dunnagan, N. D. Goldsmith 1..... 53
Russell & Co., Hamilton & Helm 4.... dry
I. Clifton, Lee Hamilton et al 1..... dry
A. Weilerman, Lee Hamilton et al 1... dry
Bullock, W. H. Hammon 1 ..... dry
Logan, E. L. Kessler 1..... 15
Larimore, King Royalty Co. 36..... 100
Johnson, Kleiner-Hill-West 3 ..... dry
Larimore, Kleiner & Riggs 6 216
Boyd, P. P. Langford 1..... dry
Herring, F. Lewis 1..... dry
Bailey, W. N. Maer 1..... dry
Jones, W. N. Maer 1..... dry
Bullock, Earl Parker 1..... dry
J. W. Davis, Roberts Oil Corp. 1..... 5
Finch, Seitz-Comegys-Seitz 4..... dry
Larimore, United Producers Co. 4-A... 90
Anderson, O. M. Wallace 1..... dry
A. Bowers, Charles Albright 3 (second completion) 120
E. S. Graham, O. Bratcher 1..... dry
Bridwell, Panhandle Ref. Co. 1..... dry

Wells completed (new) 33
Production (new) 1089
Dry 22

WEST TEXAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Howard	1	207	0	0
Pecos	2	0	2	0
Ward	5	645	0	0
Total February	8	852	2	0
Total January	11	1,866	3	0
Difference	3	1,014	1	0

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Dlg.	Ttl.
Crane	0	0	0	0
Ector	0	1	1	2
Fisher	1	0	4	5
Howard	1	1	2	4
Irion	1	0	3	4
Jones	3	0	0	3
Loving	2	6	6	14
Pecos	1	4	2	7
Reagan	0	1	4	5
Upton	0	0	2	2
Ward	6	8	8	22
Winkler	0	2	1	3
Miscellaneous	2	24	5	31
Total February	17	47	38	102
Total January	8	44	39	91
Difference	9	3	1	11

WELLS COMPLETED
CROCKETT COUNTY

J. M. Shannon, Trans-Texas Oil Co. 1 (deepened from 2,556 feet)..... 56

HOWARD COUNTY

L. C. Denman, L. C. Harrison et al 1.. 207
W. R. Settles-C, American Maracaibo Co. 1 (deepened from 2,435 feet)....1104
W. R. Settles, Group No. 1 and Continental Oil Co. 6 (deepened from 2,220 feet) 720

PECOS COUNTY

H. Monroe, Corvette Oil Corp. 8..... dry
H. Monroe, Corvette Oil Corp. 7..... dry

REAGAN COUNTY

Group 1 University, Texon O. & L. Co. 3-B (recompleted) 2227
University, Big Lake Oil Co. 1-C (recompleted) 574

Gas production 12,297,000

WARD COUNTY

Hutchings Stock Assn., Tr.-E, Gulf Prod. Co. 9 180
J. F. Boogher, Alpine Oil & Dev. Co. 4 35
Lee Monroe, Shipley et al 1..... 40
M. Weiss, Stanolind O. & G. Co. 1..... 180
Jim Henry, Barnsdall Oil Co. 1..... 210

Wells completed 5
Production 645

WINKLER COUNTY

Grisham-Hunter-C, Lion Oil Ref. Co. 6 (recompleted) 30

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Bruner	0	0	0	0	1	1	2
Dobrowloski	1	0	0	1	0	1	1
Darst Creek	0	0	0	0	0	1	1
Camp	0	0	1	0	0	0	0
Cooksey	0	0	0	0	0	1	1
Chittim	0	0	0	0	0	0	0
McFadden	0	0	0	0	0	0	0
Mirando	0	0	0	0	0	0	0
Pettus	6	4,918	0	0	1	3	4
Normanna	1	75	0	0	0	0	1
Slick	1	0	1	0	0	1	1
Schoolfield and O'Byrne	2	400	1	0	0	2	3
Los Olmos	4	10	3	0	1	5	6
Texas Pool	1	25	0	0	0	0	0
Escobas	13	1,110	0	2	1	2	3
Miscellaneous	18	20	14	3	21	90	111
Total Feb.	48	6,558	20	6	25	107	132
Total Jan.	50	4,995	16	8	22	93	115
Difference	2	1,563	4	2	3	14	17

WELLS COMPLETED
PETTUS POOL—BEE COUNTY

Gremmel, The Texas Co. 3 1560
Ray, Slick-Seeligson, Inc. 3 750
Ray, Buck Oil Corp. 2 500
Portis, Houston Oil Co. 3 500
Ray, McMurray et al 1 768

NORMANNA POOL—BEE COUNTY

Hicks, C. F. Nickols 2 75

DOBROWOLSKI POOL—BEXAR COUNTY

Gembler, Alamo Nat. Gas Co. 2 ..... gas

GOVERNMENT WELLS—DUVAL COUNTY
Bishop Cattle Co., Thomas & Tarver 5. 300
SCHOOLFIELD AND O'BYRNE POOL—DUVAL COUNTY
Bishop Cattle Co., Duval Oil Corp. 7 .. 100
CAMP POOL—GUADALUPE COUNTY
Denman, Humble O. & R. Co. 3 ..... abd
SLICK POOL—GOLIAD COUNTY
Stopke, C. R. M. and H. H. Weinert 1. abd
LOS OLMOS POOL—STARR COUNTY
Kusch, Quien Sabe O. & G. Co. 1 10
Ivey, San Marcos Oil Co. 2 ..... abd
Ivey, San Marcos O. & G. Co. 5 ..... abd
Kelsey-Bass, Suttle & Rutherford 1 .... abd
CAROLINA-TEXAS POOL—WEBB COUNTY
Webster, Usher Carson D-4 25
ESCOBAS POOL—ZAPATA COUNTY
Bustamente, Winch & Billings 7 150
Garsa, Pray & Chamberlain 4 30
Bustamente, O. W. Killam 17 10
Bustamente, Winch & Billings 1 150
Bustamente, F. H. Eltheridge 6 100
Martines, Grayburg Oil Co. 1 ..... abd
Trevino, Trevino Oil Corp. A-15 20
Bustamente, O. W. Killam 18 ..... gas
Medina, O. W. Killam 3 200
Montemayor, Daniels & Hill 1 200
Bustamente, Winch & Billings 8 100
De Los Santos, Norden & Morris 3 .... gas
Gutierrez, Allied G. & O. Co. 21 150

Wells completed 30
Production 6,538
Gas production 40,000,000
Abandoned 6

MISCELLANEOUS COUNTIES
WILDCATS
Bastrop County—
Ray, Texas Dev. Co. 1 ..... abd
Duval County—
Welder-Woods, Thomas & Tarver, Inc. 1 abd
Frio County—
Rocke, A. H. Wray 1 ..... abd
Guadalupe County—
Wells, M. W. Elser 1 ..... abd
Drumm, J. M. Scott 1 ..... abd
Goliad County—
Pettus, Camp and Stanolind 3 ..... abd
Jim Hogg County—
Holbien, R. F. Force 1 ..... abd
Karnes County—
Tips, V. F. Neuhaus 1 ..... abd
LaSalle County—
Buckley-Buckley Ranch O. & G. Co. 1. abd
Live Oak County—
Cartwright, Houston Oil Co. 24 ..... gas
Terrell, Texas Prod. Co. 2 ..... abd
McMullen County—
Hale, V. G. Schimmel 1 ..... gas
Milam County—
Beard, Nowlin et al 1 ..... abd
Nueces County—
Stratton, Stanolind O. & G. Co. 1 .... gas
Starr County—
Kelsey-Bass, Davis et al 1 20
Webb County—
Bruin, O. W. Killam 1 ..... abd
Laurel, Harris, Hayes & Newton 1 .... abd
Williamson County—
Miller, McLean et al 1 ..... abd
Zapata County—
Gutierrez, United North & South Dev. 1 abd

Wells completed 18
Production 20
Gas production 14,000,000
Abandoned 14

GULF COAST FIELDS

Texas

Field—	Comp.	Prod.	Abd	Gas	Rgs.	Dig.	Ttl.
Barbers Hill	9	6,810	2	0	1	11	12
Blue Ridge	1	1,500	0	0	1	0	1
Boling	1	0	1	0	0	1	1
Brenham	1	0	1	0	0	0	0
Damon Mound	1	0	1	0	1	1	2
Esperson	0	0	0	0	0	1	1
Fannett	1	0	1	0	0	1	1
Goose Creek	0	0	0	0	1	1	2
High Island	3	765	1	0	0	3	3
Hull	2	0	2	0	0	2	2
Humble	2	345	0	0	0	3	3
Lost Lake	0	0	0	0	0	1	1
Manvel	0	0	0	0	0	1	1
Markham	1	0	1	0	0	3	3
Moss Bluff	3	0	3	0	0	1	1
Nash	1	0	1	0	0	0	0
Orchard	0	0	0	0	1	0	1
Pierce Jctn.	5	725	3	0	0	5	5
Port Neches	0	0	0	0	0	3	3
Rabbs Ridge	4	2,100	3	0	0	2	2
Refugio	2	93	0	0	0	5	5
Saratoga	2	0	2	0	0	1	1
Miscellaneous	7	100	6	0	6	19	25
Total Feb.	46	12,438	25	0	11	65	76
Total Jan.	38	19,639	15	2	4	45	49
Difference	8	7,201	13	2	7	20	27

Louisiana

Bayou Blue	0	0	0	0	0	1	1
Black Bayou	0	0	0	0	1	0	1
Choctaw	0	0	0	0	0	2	2
Hackberry (E)	3	45	2	0	1	3	4
Hackb'y (Old)	2	0	2	0	0	0	0
Iowa	0	0	0	0	0	2	2
Jennings	1	0	1	0	0	2	2
Lake Barre	1	1,200	0	0	0	1	1
Lake Pelto	0	0	0	0	0	1	1
L. Wash'gton	1	7,200	0	0	0	0	0
Leesville	0	0	0	0	0	2	2
Port Barre	0	0	0	0	0	2	2
Starks	1	20	0	0	0	0	0
Sulphur	1	1,500	0	0	0	2	2
Sweet Lake	1	0	1	0	0	0	0
Vinton	1	800	0	0	1	1	2
Miscellaneous	4	0	4	0	3	4	7
Total Feb.	16	10,765	10	0	6	23	29
Total Jan.	12	11,790	3	1	6	21	27
Difference	3	1,025	7	1	0	2	2
Ttl. G. Coast	62	23,203	33	0	17	88	105
Total Jan.	50	31,429	18	3	10	66	76
Difference	12	8,226	20	3	7	22	29

WELLS COMPLETED
TEXAS
BARBERS HILL—CHAMBERS COUNTY
Wilburn, McAlbert Oil Co. 3 200
Fisher, Rio Bravo Oil Co. 2 ..... abd
Wilburn, Sinclair O. & G. Co. 9 600
Wilburn, Sinclair O. & G. Co. 10 1100
Wilburn, Sinclair O. & G. Co. 11 900
Higgins, Sun Oil Co. 2 1800
Lawrence, The Texas Co. 2 ..... abd
Ilfrey, Texas Gulf Prod. Co. 2 610
Kirby, Texas Gulf Prod. Co. 9-H 1600

Wells completed 9
Production 6810
Abandoned 2

BLUE RIDGE—FORT BEND COUNTY
Blakely, Coronado Oil Co. 2 1500
BOLING—WHARTON COUNTY
Owens, Grant et al 1 ..... abd
BRENHAM—WASHINGTON COUNTY
Kamas, Penn-Tex Oil Co. 2 ..... abd
DAMON MOUND—BRAZORIA COUNTY
Wisdom, Intercoastal Oil Co. 6 ..... abd
FANNETT—JEFFERSON COUNTY
Thomas, Texas Gulf Sulphur Co. 5 ..... abd
HIGH ISLAND—GALVESTON COUNTY
Cade, Yount Lee Oil Co. 20 ..... abd
Cade, Yount Lee Oil Co. 24 525
Cade, Yount Lee Oil Co. 25 240

Wells completed 3
Production 765
Abandoned 1

HULL—LIBERTY COUNTY
Dolbear, Republic Prod. Co. 89-A ..... abd
Palmer, Weneedan Oil Co. 2 ..... abd

Wells completed 2
Abandoned 2

HUMBLE—HARRIS COUNTY
Koehler, The Texas Co. 37 257
W. & P. Gulf fee, E. M. Wilson 7 83

Wells completed 2
Production 345

MARKHAM—MATAGORDA COUNTY
Smith, Duval Texas Sulphur Co. 1 ..... abd
MOSS BLUFF—LIBERTY COUNTY
Sergeant, Manning Trust Co. 2 ..... abd
Sergeant, Manning Trust Co. 3 ..... abd
Harrison, Texas Gulf Sulphur Co. 6 .... abd

Wells completed 3
Abandoned 3

NASH—BRAZORIA COUNTY
Nash, Harrison & Abercrombie 15 ..... abd
PIERCE JUNCTION—HARRIS COUNTY
Settegast, Isaacs & Carwile 1 ..... abd
Dooley, Navarro Oil Co.-Texas Expl. Co. 16 ..... abd
Gulf fee, Southern Pet. Co. 1 225
Settegast, Rio Bravo Oil Co. 10-A 500
Settegast, Rio Bravo Oil Co. 18-A ..... abd

Wells completed 5
Production 725
Abandoned 3

RABBS RIDGE—FORT BEND COUNTY
Lockwood & Sharp, Cullen & West and Gulf Prod. Co. 1-A ..... abd
Lockwood & Sharp, Cullen & West and Gulf Prod. Co. 4-A ..... abd
Lockwood & Sharp, Cullen & West and Gulf Prod. Co. 1-B ..... abd
Booth Meyers, Gulf Prod. Co. 2 2100

Wells completed 4
Production 2100
Abandoned 3

REFUGIO—REFUGIO COUNTY
O'Brien, Houston Oil Co. 1 15
Ryals, Pearson Properties 3 78

Wells completed 2
Production 93

SARATOGA—HARDIN COUNTY
"B," Rio Bravo Oil Co. 127-A ..... abd
"B," Rio Bravo Oil Co. 128-A ..... abd

Wells completed 2
Abandoned 2

MISCELLANEOUS TEXAS
Fort Bend County—
H.&T.C. Sur. No. 118, Beard, Stone & Wyman 1 ..... abd
Harris County—
W.C.R.R. Sur., Sec. 11, Wise, Hewitt & Shibe 1 ..... abd
Ritchie Sur., Wilson, La. O. & Dev. Co. 1 ..... abd
Montgomery County—
Goheen Sur., So. Tex. Dev. Co., Lowrie & Young 1 ..... abd
Newton County—
J. M. Scott Sur., Inman, Briscoe et al 1 abd
Tyler County—
Cherry Sur., Wilson, Allied Pet. Co. 3.. abd
Victoria County—
Martin DeLeon Sur., Keeran, Bunte et al 1 100

Wells completed 7
Production 100
Abandoned 6

SOUTH LOUISIANA
EAST HACKBERRY—CAMERON PARISH
Watkins, Calcasieu Oil Co. 26 45
Watkins, Calcasieu Oil Co. 31 ..... abd
State, The Texas Co. 8-B ..... abd

Wells completed 3
Production 45
Abandoned 2

OLD HACKBERRY—CAMERON PARISH
Vincent, R. E. Siess 2 ..... abd
Vincent, R. E. Siess 3 ..... abd

Wells completed 2
Abandoned 2

JENNINGS—ACADIA PARISH
Cruse, Phillippi & Artigues 1 ..... abd
LAKE BARRE—TERREBONNE PARISH
L. L. & E., The Texas Co. 1 1200
LAKE WASHINGTON—PLAQUEMINES PARISH
Cockrell-Moran, Humble O. & R. Co. 7 .. 7200
STARKS—CALCASIEU PARISH
Luther-Moore, Gulf Ref. Co. 29 20
SULPHUR—CALCASIEU PARISH
Fee, Union Sulphur Co. 722 1500
SWEET LAKE—CAMERON PARISH
Yount Lee Oil Co., Pure Oil Co. 5 ..... abd
VINTON—CALCASIEU PARISH
Gray, Marrs McLean 9 800
MISCELLANEOUS LOUISIANA
Iberia Parish—
Jefferson Island—Lake Peigneur, Jefferson Lake Oil Co. 26 ..... abd
Jefferson Island—Lake Peigneur, Jefferson Lake Oil Co. 27 ..... abd
LaFourche Parish—
Chacahoula—Stark, State Prod. Co. "B" abd
Chacahoula—Stark, State Prod. Co. "C" abd

Wells completed 4
Abandoned 4

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rgs.	Dig.	Ttl.
Avoylles	0	0	0	0	1	0	1
Bossier	0	0	0	0	1	3	4
Caddo	1	50	0	0	0	3	3
Caldwell	0	0	0	0	0	2	2
Catahoula	0	0	0	0	0	1	1
DeSoto	0	0	0	0	1	4	5
Morehouse	0	0	0	0	0	2	2
Natchitoches	0	0	0	0	1	4	5
Ouachita	1	0	1	0	1	2	3
Red River	0	0	0	0	0	1	1
Richland	1	0	0	1	0	1	1
Sabine	12	1,060	8	0	12	26	38
Tensas	0	0	0	0	0	1	1
Total Feb.	15	1,110	9	1	17	50	67
Total Jan.	19	5,520	8	3	12	53	65
Difference	4	4,410	1	2	5	3	2

*Gas production: Richland, 12,132,000 ft.

WELLS COMPLETED
CADDO PARISH
32-21-15 Muslow, Shreveport Oil Corp. 2-B 50
OUACHITA
8-18-5e Wiley, United Gas Public Service Co. 1 ..... dry
RICHLAND
34-17-6e Alice Purvis, United Gas Public Service Co. 1-B ..... gas

Gas production 12,132,000
SABINE PARISH
14- 7-11 Duggan, O. J. Baird 1 ..... dry
11- 7-11 Sabine Lumber Co., Roy Baker 1 ..... dry
2- 7-12 Bowman-Hicks, W. M. Coates 1 10
30- 8-12 Mischell, O. A. Cautier 1 ..... dry
14- 7-11 McNeely, W. F. Lacey 1 600
4- 7-12 Bowman-Hicks, Loring Oil Co. 20 ..... dry
6- 7-10 Buckley, Pelican Nat. Gas 1.. dry
28- 8-12 McGehee, Ruston Drlg Co. 1.. dry
1- 7-11 Jacobs, Eddie Self 3 75
2- 7-13 Faris, Southland Drlg. Co. 1.. 375
12- 7-11 Cutrer, A. F. Tarver 2 ..... dry
7- 7-10 Byrd, C. H. Tuttle 1 ..... dry

Initial production 1060
Dry 8

MISSISSIPPI

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rgs.	Dig.	Ttl.
Hinds	2	0	0	2	4	3	7
Jasper	0	0	0	0	0	1	1
Lowndes	0	0	0	0	1	0	1
Monroe	2	0	2	0	0	0	0
Newton	0	0	0	0	0	1	1
Noxubee	0	0	0	0	0	1	1
Rankin	1	0	0	1	4	4	8
Scott	0	0	0	0	1	0	1
Sharkey	0	0	0	0	0	1	1
Warren	0	0	0	0	0	1	1
Total Feb.	5	0	2	3	10	12	22
Total Jan.	10	0	2	8	12	10	22
Difference	5	0	0	5	3	2	1

*Gas production: Hinds, 65,000,000 ft.; Rankin, 52,290,000 ft.; total, 117,290,000 ft.

WELLS COMPLETED
HINDS COUNTY
1-5n-1e Interior Lumber Co., Consumers Gas & Oil Co. 1 ..... gas
4-5n-1e Dreyfuss, Roell Oil & Gas Co. 1 gas

Gas production 65,000,000
MONROE COUNTY
2-13-19 Bouriand, Amory Dev. Co. 1... dry
2-12-19 Cowart, McAlpine et al 1 ..... dry
RANKIN COUNTY
1-5n-1e Taylor & Watkins, James Alexander, trustee 1 ..... gas

Gas production 52,290,000

ARKANSAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rgs.	Dig.	Ttl.
Clay	0	0	0	0	0	1	1
Cleburne	0	0	0	0	0	1	1
Cleveland	0	0	0	0	1	0	1
Columbia	0	0	0	0	0	1	1
Dallas	0	0	0	0	1	1	2
Drew	0	0	0	0	0	1	1
Hot Springs	0	0	0	0	0	1	1
Lawrence	0	0	0	0	1	0	1
Lincoln	0	0	0	0	0	1	1
Little River	1	0	1	0	0	0	0
Logan	0	0	0	0	0	1	1
Miller	0	0	0	0	0	1	1
Ouachita	0	0	0	0	1	1	2
Pike	0	0	0	0	0	2	2
Prairie	0	0	0	0	1	0	1
Scott	0	0	0	0	0	2	2
Sevier	0	0	0	0	0	1	1
Union	0	0	0	0	4	9	13
Van Buren	0	0	0	0	0	1	1
Washington	0	0	0	0	0	1	1
Yell	0	0	0	0	0	1	1
Total Feb.	1	0	1	0	9	27	36
Total Jan.	2	0	2	0	8	27	35
Difference	1	0	1	0	1	0	1

WELLS COMPLETED
LITTLE RIVER COUNTY
23-15-16w Dierke Lumber Co., Stephens et al 1 ..... dry

ROCKY MOUNTAIN AREA

NEW MEXICO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
DeBaca	0	0	0	0	0	2	2
Eddy	1	0	0	1	3	5	8
Lea	1	14,761	0	0	3	5	8
McKinley	1	0	1	0	1	5	6
Rio Arriba	0	0	0	0	0	3	3
San Juan	0	0	0	0	0	1	1
San Miguel	0	0	0	0	0	7	7
Miscellaneous	0	0	0	0	1	5	6
Total Feb.	3	14,761	1	1	8	46	56
Total Jan.	7	8,565	3	1	6	47	53
Difference	4	6,196	2	0	2	1	3

WELLS COMPLETED
19-18- 8 Santa Fe, H. L. Williams 1 .. dry
4-19-38 State, Midwest Ref. Co. 11 ..14,761
28-17-29 State, Leonard & Levers 6 .... gas

Wells completed 1
Production 14,761
Gas production 1,500,000

WYOMING
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Big Horn	0	0	0	0	0	3	3
Carbon	0	0	0	0	1	6	7
Fremont	0	0	0	0	1	1	2
Hot Springs	0	0	0	0	0	2	2
Johnson	1	0	1	0	0	0	0
Natrona	1	0	1	0	5	4	9
Park	0	0	0	0	2	7	9
Sweetwater	0	0	0	0	2	5	7
Sublet	0	0	0	0	0	7	7
Uinta	0	0	0	0	0	6	6
Washakie	1	0	1	0	0	1	1
Weston	1	5	0	0	1	12	13
Miscellaneous	0	0	0	0	0	8	8
Total Feb.	4	5	3	0	12	62	74
Total Jan.	2	0	2	0	12	66	78
Difference	2	5	1	0	0	4	4

WELLS COMPLETED
21-46-63 Jones-Rose Synd. 1 5
19-45-92 Strothers, Ohio Oil Co. 1 ..... dry
32-34-77 Geary, Midwest Ref. Co. 11 ... dry
4-32-82 Kaycee Dome Synd. 3 ..... dry

Wells completed 4
Production 5
Dry and abandoned 3

COLORADO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Arapahoe	0	0	0	0	0	2	2
Boulder	0	0	0	0	0	4	4
Elbert	0	0	0	0	0	3	3
Fremont	0	0	0	0	0	5	5
LaPlata	0	0	0	0	1	3	4
Larimer	1	30	0	0	1	12	13
Las Animas	0	0	0	0	1	2	3
Moffat	0	0	0	0	2	3	5
Morgan	0	0	0	0	2	1	3
Rio Blanco	0	0	0	0	0	4	4
Routt	0	0	0	0	1	2	3
Weld	2	0	2	0	2	5	7
Miscellaneous	0	0	0	0	0	24	24
Total Feb.	3	30	2	0	10	70	80
Total Jan.	5	0	5	0	12	71	83
Difference	2	30	3	0	2	1	3

WELLS COMPLETED
33-7n-62 O'Toole, Prairie O. & G. Co. 1. dry
14-6n-61 Johnson-Juhl, Reiter-Foster 1. dry
16-4n-69 State, Raddatz Corp. 2 30

Wells completed 3
Production 30
Dry and abandoned 2

MONTANA
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Carbon	0	0	0	0	3	6	9
Cascade	0	0	0	0	0	3	3
Fergus	0	0	0	0	0	2	2
Glacier	0	0	0	0	2	4	6
Hill	0	0	0	0	1	1	2
Liberty	0	0	0	0	1	5	6
Musselshell	1	0	1	0	0	1	1
Pondera	0	0	0	0	0	2	2
Teton	0	0	0	0	0	4	4
Toole	1	60	0	0	0	4	10
Miscellaneous	0	0	0	0	1	15	16
Total Feb.	2	60	1	0	14	47	61
Total Jan.	6	3,936	1	1	13	48	61
Difference	4	3,876	0	1	1	1	0

WELLS COMPLETED
2-37-4w Iowa-Holding, Cosmos Pet., Inc. 3 60
7-13-26 Ivanhoe, Minnesota-Flatwillow 1 dry

Wells completed 2
Production 60
Dry and abandoned 1

UTAH
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dig.	Ttl.
Total Feb.	0	0	0	0	1	19	20
Total Jan.	0	0	0	0	1	19	20
Difference	0	0	0	0	0	0	0

EASTERN FIELDS

Summary of Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Allegany	11	77	0	0
Bradford	40	187	0	0
Venango-Clarion	6	5	1	1
Butler-Armstrong	3	1	0	2
Middle Field	4	8	0	0
Tioga-Wayne	14	3	9	4
Southwest Pennsylvania	6	3	0	5
Southeast Ohio	19	241	7	5
West Virginia	30	51	4	20
Total February	135	576	21	37
Total January	150	623	15	34
Difference	17	47	6	3

Summary of Rigs and Wells Drilling

Field—	Rigs	Drg.	Ttl.
Allegany	1	11	12
Bradford	4	22	26
Venango-Clarion	2	6	8
Butler-Armstrong	1	3	4
Middle Field	0	3	3
Tioga-Wayne	3	28	31
Southwest Pennsylvania	3	9	12
Southeast Ohio	9	19	28
West Virginia	18	34	52
Total February	41	135	176
Total January	47	157	204
Difference	6	22	28

WELLS COMPLETED

ALLEGANY

Lippert, C. M. Lippert et al 2
Kinley, Pure Penn Oil, Inc. 1
Fee, N. V. V. Franchot 30
Fee, N. V. V. Franchot 20
Fee, Jacob Meridan et al 1
McCaffery, Mrs. H. S. Westran 1
South Penn, Bradley & Streeter 15
Fee, Blanche Sikes et al 5
Fee, Shaner and Wakeman 1
Ames, O. A. Eastman et al ..... pressure
Fee, Forest Oil Corp. 1

Wells completed 11
Production 77
Pressure 1

BRADFORD

Fee, Mix Creek Oil Co. 1
Fee, Mix Creek Oil Co. ..... pressure
Fee, D. M. Hoffman estate 1
Fee, E. D. Kepner Oil Co. 5
Fee, G. W. Smith estate 8
Fee, Forest Oil Corp. 1
Fee, Forest Oil Corp. 1
Fee, Forest Oil Corp. 1
Fee, Forest Oil Corp. ..... pressure
Fee, Forest Oil Corp. ..... pressure
Fee, Forest Oil Corp. ..... pressure
Fee, Forest Petroleum Corp. 1
Fee, Forest Petroleum Corp. 1
Fee, Forest Pet. Corp. (5 wells) .... pressure
Griffin, Carl W. Morris 2
Fee, L. G. Dana 5
Quintuple, Healey Pet. Corp. 1
Quintuple, Myron W. Matson ..... pressure
Burdic, South Penn Oil Co. ..... pressure
Fee, Indian Creek Oil Co. 4
Franchot, Mrs. F. M. and F. H. Johnston 1
Franchot, Bradford Prod. Co., Inc. 35
Fee, Bradford Prod. Co., Inc. 30
Fee, Bradford Prod. Co., Inc. 35
Bingham 538, A. B. Collins 2
Fee, Olean Pet. Corp. 15
Bingham 143, Producers Bank & Trust Co. 9 3
Fee, H. J. Walter Oil Co. 2
Hunt, Healey Pet. Corp. 1
Melvin, South Penn Oil Co. 4
Artley, Bradford Prod. Co., Inc. .... pressure
Mitchell, Bradford Prod. Co., Inc. 20
Harter, Bradford Prod. Co., Inc. 2
Willet, Sloan & Zook Pet. Co. ..... pressure
Borden, T. P. Johnson, Jr. 2
Duke, Sloan & Zook Oil Co. 1 3

Wells completed 40
Production 187
Pressure 13

CLARION-VENANGO

Starner, Fryburg Motor Co. 5 ..... gas
Rice, Rice and Thompson 9 1
Trax, Berlin and Kelley ..... dry
Heasley, J. W. and G. G. Heasley 7 2
Fye, W. H. Master et al 4 1
Foskey, Burchfield, Titusville Trust Co. 24 1

Wells completed 6
Production 5
Dry 1
Gas 1

BUTLER-ARMSTRONG

Norton, Ethridge & Gettman 1 ..... gas
Montag, Frederick & Co. 2 ..... gas
Norris, Ritzert Bros. & Co. 1 1

Wells completed 3
Production 1
Gas 2

MIDDLE FIELD

Fee, F. M. Books 2
Scio, C. A. Duke estate 2
Middaugh, A. L. and L. M. Lilly 3
Bauer, E. B. Anderson 1

Wells completed 4
Production 8

TIOGA-WAYNE

Geo. Shaler et al ..... dry
McCallum, Workmen et al ..... dry
Learn, Mutual Natural Gas Co. ..... gas
Booth, Hungerford et al ..... gas
Meaker, Penn United No. 2 ..... dry
Braisted, Mosherville Oil & Gas Co. .... dry
Hettick, Penn York ..... dry
Alson, Duff et al ..... dry
McKelvey, Susquehanna Oil & Gas Co. . dry
Sherwood, Campbell et al ..... oil
Sovocool, Hammondsport Nat. Gas Co... gas
Butters, Morris Run Coal Co. ..... dry
Fee, Williamsport Oil & Gas Co. ..... gas
Keith, Herkin and Peterson ..... dry

Wells completed 14
Production 3
Dry 9
Gas 4

SOUTHWEST PENNSYLVANIA
WELLS COMPLETED
ALLEGHENY COUNTY

Martin, Local Co., 1 3

BUTLER COUNTY

McKinney, W. Y. Goettman 1 ..... gas
Albert, Local Co., 1 ..... gas

GREENE COUNTY

M. Fox, Equitable Gas Co. 1 ..... gas
Wade, Equitable Gas Co. 1 ..... gas
Miller heirs, Convex Glass Co. 1 ..... gas

SOUTHEAST OHIO
WELLS COMPLETED
ATHENS COUNTY

Boden, Standard Nat. Gas Co. 1 ..... gas

COSHOCTON COUNTY

Hault, Ohio Gas Light & Coke Co. 4 ... gas
Beatty, Preston Oil Co. 1 50

HOCKING COUNTY

Park, Griffin Producing Co. 2 ..... gas

JEFFERSON COUNTY

Crawford, Sanders Bros. 1 ..... dry

LICKING COUNTY

Motherspaw, Peoples Banking & Trust Co., account No. 32, of Marietta, 5 ... dry

MEDINA COUNTY

Packard, Preston Oil Co. 1 35
Franks, E. R. Edson & Son Co. 33 15
MVicker, Oko Oil & Gas Co. 36 ..... dry
Packard, E. R. Edson & Son Co. 32 ... dry
Franks, E. R. Edson & Son Co. 34 ... 20
Packard, E. R. Edson & Son Co. 33 ... dry
Funk, F. Barnhard et al 5 ..... dry

MORGAN COUNTY

Hopkins, Cumberland Oil Co. 2 ..... gas

MUSKINGUM COUNTY

Gibson heirs, Ohio Fuel Gas Co. 1 .... dry
Drake, The Wittmer Co. 1 ..... gas

PERRY COUNTY

Scallon, Hopewell Fuel & Gas Co. 2 20

WASHINGTON COUNTY

Mendenhall, Keader Estate 1 1
Crago, William Harris et al 1 100

WEST VIRGINIA
WELLS COMPLETED
BOONE COUNTY

Hopkins, South Penn Oil Co. 4 ..... gas

CABELL COUNTY

Dunn, D. H. Campbell et al 1 ..... gas
Perry, R. H. Adkins et al 1 ..... gas

CALHOUN COUNTY

Hathaway, Creed Barket et al 1 ..... gas
Haddox, W. Bickerstaff et al 1 ..... gas
Sturms, Lyle Ayers et al 1 ..... gas
Little, Poling and Mollahan 1 ..... gas

GILMER COUNTY

Stout, McCall et al 5 ..... gas
Garrett, Carnegie Nat. Gas Co. 1 ..... dry
Bartlett, Pgh. & W. Va. Gas Co. 7,572 gas

HANCOCK COUNTY

Johnson, R. J. Braden & Co. 1 2

HARRISON COUNTY

Smith, Pgh. & W. Va. Gas Co. 2 ..... dry

KANAWHA COUNTY

Federal Coal Co., Godfrey L. Cabot 51 . gas
Quincy Coal Co., Godfrey L. Cabot 23 . dry

LEWIS COUNTY

Butcher, Southern Oil Co. 5 2

LINCOLN COUNTY

Yates, Frank Yates 1 33
McMellon, Campbell Drlg. Co. 1 ..... gas
Johnson, Kanawha Gas & Utilities Co. 1 gas
Honaker, Woodall Gas Co. 2 ..... gas
Adkins, Hamlin Nat. Gas Co. 1 ..... gas
Courtney Land Co., United Fuel Gas 8. gas

MARION COUNTY

Satterfield, Snider and Pense 3 5

MASON COUNTY

Newton heirs, E. C. Moffett Drlg. Co. 2 gas

MINGO COUNTY

Spaulding, W. H. Norton, trustee 4 ... 8

MONONGALIA COUNTY

Davidson, S. W. Meals et al 1 ..... dry

PLEASANTS COUNTY

Dye, Dye Farm Oil Co. 1 ..... 1⅛

PUTNAM COUNTY

Dent, J. V. Reishman 1 ..... gas
Chapman, Clarke and Life 1 ..... gas

RITCHIE COUNTY

Sandy, Lewis Drlg. Co. 1 ..... gas

WAYNE COUNTY

Thompson, Chartiers Oil Co. 1 ..... gas

CENTRAL OHIO

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	2	0	2	0	1	3	4
Lorain	2	0	2	0	1	1	2
Medina	5	110	2	0	0	5	5
Holmes	0	0	0	0	0	2	2
Cuyahoga	1	0	1	0	0	1	1
Richland	0	0	0	0	0	1	1
Coshocton	1	50	0	0	1	0	1
Summitt	0	0	0	0	0	4	4
Licking	3	0	2	1	0	5	5
Muskingum	2	0	1	1	5	6	11
Athens	2	0	0	2	3	6	9
Tuscarawas	1	0	1	0	2	0	2
Stark	12	0	0	12	8	21	29
Fairfield	1	0	1	0	0	1	1
Guernsey	2	0	1	1	1	4	5
Belmont	0	0	0	0	1	1	2
Gallia	0	0	0	0	0	1	1
Scioto	0	0	0	0	0	2	2
Pike	0	0	0	0	0	2	2
Carroll	1	0	1	0	0	4	4
Columbiana	0	0	0	0	0	1	1
Crawford	0	0	0	0	0	1	1
Total Feb.	35	160	14	17	23	72	95
Total Jan.	45	266	9	24	23	76	99
Difference	10	106	5	7	0	4	4

WELLS COMPLETED
ASHLAND COUNTY

Montgomery—W. Shearer, Commonwealth Gas Corp. 1 ..... dry
Lake—David Horn, Harmon & George 6 dry

Wells completed 2
Dry 2

LORAIN COUNTY

Grafton—F. Armbruster, Ramage & Willis 2 ..... dry
Avon—H. & C. Norton, McMillan & Co. 1 ..... dry

Wells completed 2
Dry 2

MEDINA COUNTY

Chatham—Marcus A. Frank, Edson Sons Co. 35 25
Marcus A. Frank, Edson Sons Co. 36 60
Geo. W. Packard, Edson Sons & Co. 32 dry
Jess McVickers, Oko Oil & Gas 36 ... dry
Harrisville—Jos. Funk, Barnhart & Co. 7 25

Wells completed 5
Production 110
Dry 2

CUYAHOGA COUNTY

Rockport—John E. Raible, L. T. McGrath 1 ..... dry

COSHOCTON COUNTY

Newcastle—A. J. and B. W. Beatty, Preston Oil 1-1,493 50

LICKING COUNTY

Fallsburg—Thos. Moren, Emerald Pet Co. 1 ..... dry
Granville—F. W. Hobart heirs, Wehrle Gas 4 ..... dry
Mary An—Stanton Wilson, Fred Eshelman 1 ..... gas

Wells completed 3
Dry 2
Gas 1

MUSKINGUM COUNTY

Brush Creek—Gibson heirs, Ohio Fuel Gas 1-5,600 ..... dry
Bertha E. Drake, Palmer & Gelsinger 1 ..... gas

Wells completed 2
Dry 1
Gas 1

ATHENS COUNTY

Carthage—I. S. Swartz, Fred Gunthal & Co. 1 ..... gas
Waterloo—James Bowden, Standard Natural Gas 8 ..... gas

Wells completed 2
Gas 2

TUSCARAWAS COUNTY

Sandy—Holden Clay Products, Wiser Oil 1 ..... dry

STARK COUNTY

Jackson—L. C. Buchtel, Ohio Fuel Gas 1-5,596 ..... gas
Wm. J. Hitz, Ohio Fuel Gas 1-5,594.. gas
T. K. Harris 34, East Ohio Gas 4 .... gas
C. & M. Yearkey, Brendall & Co. 1 .. gas
Wm. Zuber, Brendall & Co. 1 ..... gas
J. C. Steiner, Brendall & Co. 3 ..... gas
Wm. Haymaker, Brendall & Co. 3.... gas
R. & S. Danner, Brendall & Co. 1 .... gas
Eli Snyder, William Pfeiffer 1 ..... gas
Eva M. Sisler, Sisler & Co. 2 ..... gas
Henry C. Rudy, Fulton Oil & Gas 3.. gas
Lawrence—W. L. Keller & Co., Wittmer Oil & Gas 1 ..... gas

Wells completed 12
Gas 12

FAIRFIELD COUNTY

Berne—W. & H. Brucker, City Natural Gas Works 3 ..... dry

GUERNSEY COUNTY

Jackson—Guernsey Valley Fair, W. C. Urban & Co. 3 ..... gas
Westland—Bessie Taylor, C. C. Wharton 2 ..... dry

Wells completed 2
Dry 1
Gas 1

CARROLL COUNTY

Orange—John H. Scott, Turner & Co. 1 dry

LIMA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Seneca	3	0	1	2	0	5	5
Lucas	0	0	0	0	2	3	5
Hardin	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	2	2
Darke	0	0	0	0	0	1	1
Logan	1	0	1	0	0	0	0
Putnam	0	0	0	0	0	1	1
Wyandot	4	7	0	1	2	3	5
Total Feb.	8	7	2	3	4	16	20
Total Jan.	6	18	1	3	2	17	19
Difference	2	11	1	0	2	1	1

COMPLETED WELLS
WOOD COUNTY

Troy—Wm. Burkholder, Onsel Bros. & Co. 1 ..... abd
F. E. H. Sampson, Onsel Bros. & Co. 1 ..... abd
Montgomery—E. Crossman, Ohio Oil 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11..... abd
O. Wolcott, Ohio Oil 1, 2, 3 ..... abd
F. Fairbanks, Ohio Oil 4, 5, 6, 7 .... abd
C. S. Adams, A. L. Johnson & Co. 1, 2, 3, 4, 5, 6, 7, 8 ..... abd
Bloom—H. T. & R. Christ, Ohio Oil 1, 2 abd
Lincoln A. Foster, Ohio Oil 1, 4, 7, 8. abd

Abandoned 34

HANCOCK COUNTY

Portage—J. N. King, Ohio Oil 17 ..... abd
Liberty—Justice Chase, Ohio Oil 20 ... abd

Abandoned 2

SANDUSKY COUNTY

Woodville—Henry Bruns, Ohio Oil 5 .. abd
Wm. Magsig, William Magsig 4 ..... abd

Abandoned 2

AUGLAIZE COUNTY

Moulton—Mary Tester, Young-Geselchen 1 ..... abd

SENECA COUNTY

Clinton—F. E. Baldwin, Arthur Geyer 3 dry
Liberty—L. E. Koerper, M. E. Kiser 1. gas
Nicholas Weber, L. Curry 1 ..... gas

Wells completed 3
Dry 1
Gas 2

OTTAWA COUNTY

Allen—P. Johnson, Ohio Oil 5 ..... abd
C. Michelson, Ohio Oil 1, 5 ..... abd
Adam Felbinger, Ohio Oil 1, 2, 3, 4, 5 abd

Abandoned 8

LOGAN COUNTY

Jefferson—Wm. Harpst, Ennis Bros. & Co. 1 ..... dry

WYANDOT COUNTY

Tymochtee—Bowman-Billhart, McPherson, Miller & Co. 4 1
Crawford—Homer Wonder, McPherson, Miller & Co. 4 2
C. S. Grubel, Murphy & Co. 1 4
Ridge—Ettie Smith, R. W. Kurtz & Co. 1 ..... gas

Wells completed 4
Production 7
Gas 1

ILLINOIS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	0	0	0	0	0	2	2
Coles	0	0	0	0	0	1	1
Crawford	1	10	0	0	1	1	2
Edgar	0	0	0	0	0	1	1
St. Clair	1	0	1	0	0	1	1
Randolph	0	0	0	0	0	2	2
Monroe	0	0	0	0	0	2	2
Washington	0	0	0	0	0	1	1
Boone	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
Jefferson	0	0	0	0	0	1	1
Jasper	0	0	0	0	0	1	1
Marion	0	0	0	0	0	1	1
Bond	0	0	0	0	0	1	1
Total Feb.	2	10	1	0	1	18	19
Total Jan.	6	3	3	1	1	18	19
Difference	4	7	2	1	0	0	0

WELLS COMPLETED
CRAWFORD COUNTY

Montgomery—W. I. Wesner, W. C. McBridge, Inc. 1 10

LAWRENCE COUNTY

Petty—Oscar Smith, Ohio Oil 6, 33..... abd
E. P. Eshelman, Ohio Oil 11, 23 .... abd
J. D. Madding, Ohio Oil 16, 17, 19, 20, 21 ..... abd
L. D. Sutton, Ohio Oil 8, 11 ..... abd
Bridgeport—J. T. Griggs' No. 1, Ohio Oil 26 ..... abd
Lawrence—Effie Eshelman, Ohio Oil 4. abd

Abandoned 13

ST. CLAIR COUNTY

Stookey—Waelta, Collins & Co. 1 ..... dry

KENTUCKY FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	0	0	0	0	0	1	1
Ohio	3	10	1	0	0	8	8
Daviess	5	275	1	0	0	4	4
Hancock	3	0	2	1	2	8	10
McLean	0	0	0	0	4	9	13
Hart	4	235	0	1	0	9	9
Greene	0	0	0	0	1	1	2
Muhlenberg	1	0	1	0	0	1	1
Henderson	1	20	0	0	0	2	2
Webster	1	0	0	1	0	4	4
Edmonson	0	0	0	0	0	1	1
Todd	0	0	0	0	0	1	1
Nelson	0	0	0	0	0	1	1
Taylor	0	0	0	0	0	1	1
Cumberland	1	0	0	1	0	1	1
Madison	0	0	0	0	0	1	1
Bath	0	0	0	0	0	1	1
Breckenridge	0	0	0	0	0	1	1
Christian	0	0	0	0	0	5	5
Hopkins	0	0	0	0	0	3	3
Total Feb.	19	540	5	4	7	63	70
Total Jan.	30	1,122	9	3	7	70	77
Difference	11	582	4	1	0	7	7

WELLS COMPLETED
OHIO COUNTY

Hartford—Nation Bros., Oliver Jenkins & Co. 3 5
John McCarty, Chester Oil 1 5
Frank Hanna, Porter, Burgess & Co. 2 ..... dry

Wells completed 3
Production 10
Dry 1

DAVIESS COUNTY

Owensboro—Robt. Jones, Mida McMahon 2 175
A. Jackson, Breener & Adams 1 20
Myertle Howard, Ellis & Ashby 5 .. 75
Asa Brathcer, Huff, French & Co. 1. 5
J. F. Bruner, S. H. Russell & Co. 1.. dry

Wells completed 5
Production 275
Dry 1

HANCOCK COUNTY

Pellville—Eulus Bolling, Sand Pet., Inc. 1 ..... gas
John Smith, Ivyton Oil & Gas 1 .... dry
W. F. Burke, Sand Pet., Inc. 2 ..... dry

Wells completed 3
Dry 2
Gas 1

HART COUNTY

Logsdon Valley—Grover Jaggers No. 1, Hupp & Duff 13 100
Grover Jaggers No. 2, Hupp & Duff 4 60
Grover Jaggers No. 2, Hupp & Duff 5 75
Bonneville—Unknown, Mud Branch Oil & Gas 1 ..... gas

Wells completed 4
Production 235
Gas 1

MUHLENBERG COUNTY

Greenville—Elain Shelton, Ohio Oil 1 .. dry

HENDERSON COUNTY

Niagara—Aaron Freeman, Imperial O. & G. Products 2 20

WEBSTER COUNTY

Sebree—Jim Liggitt, Ley Browning 1... gas

CUMBERLAND COUNTY

Burkesville—Highway 90, Archie McGuire & Co. 1 ..... gas

MICHIGAN FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Muskegon	0	0	0	0	1	1	1
Isabella	0	0	0	0	16	28	44
Midland	4	20	1	0	10	22	32
Clare	0	0	0	0	2	2	4
Mecosta	1	0	1	0	0	0	0
Lake	0	0	0	0	0	2	2
Cass	0	0	0	0	0	2	2
Kent	0	0	0	0	1	2	3
Monroe	0	0	0	0	1	1	2
Oceana	0	0	0	0	2	5	7
Emmett	0	0	0	0	0	1	1
Eaton	0	0	0	0	1	0	1
Iosco	0	0	0	0	2	0	2
Lenawee	0	0	0	0	0	1	1
Washtenaw	0	0	0	0	0	1	1
Ogemaw	0	0	0	0	0	1	1
Montmorency	0	0	0	0	3	0	3
Sanilac	0	0	0	0	3	0	3
Leelanau	0	0	0	0	1	0	1
Gratiot	0	0	0	0	2	0	2
Shiawassee	0	0	0	0	2	2	4
Allegan	0	0	0	0	0	4	4
Livingston	0	0	0	0	2	1	3
Osceola	0	0	0	0	2	0	2
St. Clair	0	0	0	0	1	0	1
Alpena	0	0	0	0	1	0	1
Cheboygan	0	0	0	0	0	1	1
Kalamazoo	0	0	0	0	0	1	1
Huron	1	0	1	0	0	0	0
Oakland	0	0	0	0	0	1	1
Newyago	0	0	0	0	0	1	1
Macomb	1	0	0	1	0	0	0
Saginaw	0	0	0	0	1	0	1
Gennessee	0	0	0	0	1	0	1
St. Joseph	0	0	0	0	1	0	1
Total Feb.	7	20	5	1	55	80	135
Total Jan.	9	1,035	2	5	59	82	141
Difference	2	1,015	3	4	4	2	6

WELLS COMPLETED

MIDLAND COUNTY

Greendale—Joe Novak & Co., Pure Oil 1 20
Lee—S. N. Robinson, Theodore Oil 1... dry
H. & M. Thom, Wells & Miller 1 ..... dry
Porter—Frank Howland, Pure Oil 1 ... dry

Wells completed 4
Production 20
Dry 3

MECOSTA COUNTY

Wheatland—Mike Bauman, Lewis D. Nehrtens 1 ..... dry

HURON COUNTY

Sheridan—Wm. Gallagh, Pacific Exploration 1 ..... dry

MACOMB COUNTY

Chesterfield—Gregory Krantz, H. H. Brown 1 ..... gas

INDIANA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Gibson	2	105	1	0	0	4	4
Pike	3	50	0	2	0	2	2
Daviess	0	0	0	0	0	6	6
Warrick	0	0	0	0	0	1	1
Sullivan	2	0	1	1	0	5	5
Spencer	0	0	0	0	0	6	6
Perry	1	0	1	0	0	5	5
Knox	1	0	1	0	0	4	4
Marshall	0	0	0	0	1	1	2
Lagrange	0	0	0	0	0	1	1
Putnam	0	0	0	0	0	1	1
Posey	0	0	0	0	0	1	1
Laporte	0	0	0	0	0	1	1
Dubois	0	0	0	0	0	2	2
Harrison	0	0	0	0	0	3	3
Dearborn	0	0	0	0	0	1	1
Hamilton	0	0	0	0	0	2	2
Sheiby	1	0	1	0	0	0	0
Crawford	0	0	0	0	1	0	1
Greene	0	0	0	0	0	3	3
Switzerland	0	0	0	0	0	2	2
St. Joe	0	0	0	0	0	1	1
Rush	0	0	0	0	0	2	2
DeKalb	0	0	0	0	0	1	1
Pulaski	0	0	0	0	0	1	1
Floyd	1	0	1	0	0	0	0
Fountain	0	0	0	0	0	1	1
Orange	0	0	0	0	0	1	1
Hendricks	0	0	0	0	0	1	1
Total Feb.	11	155	6	3	2	59	61
Total Jan.	17	180	5	9	4	58	62
Difference	6	25	1	6	2	1	1

WELLS COMPLETED

GIBSON COUNTY

Washington—Agnes Haskins, Gib Van Oil 3 105
Patoka—B. J. Fields, United Oil Corp. & Co. 1 ..... dry

Wells completed 2
Production 105
Dry 1

PIKE COUNTY

Washington—Craig heirs, Harry N. Bell & Co. 3 ..... gas
Aaron George, C. C. Taliaferro, Jr., 6 gas
Logan—E. Loveless, P. C. Andrews 10. 50

Wells completed 3
Production 50
Gas 2

SULLIVAN COUNTY

Curry—W. Z. Payne, Pierson & Co. 1 .. gas
Dolphia Sludder, Wm. H. Wood 2 ... dry

Wells completed 2
Dry 1
Gas 1

PERRY COUNTY

Tobin—U. B. Cummings, H. C. Darby & Co. 1 ..... dry

KNOX COUNTY

Busseron—Union Investment Co., James H. Gardner 1 ..... dry

SHELBY COUNTY

Hendricks—W. McKenne, W-B Oil Co. 1 ..... dry

FLOYD COUNTY

Georgetown—James A. Sharp, Brooks J. Johnston 1 ..... dry

CANADIAN FIELDS

(Continued from Page 37)

Valley, Miracle Oils' No. 3, LSD 11, Section 4-19-2w5, is standing in the lime at 6,150 feet and is reported making about 15 bbls. per day of 50 gravity crude. The well accumulates heads of gas and is also reported showing a little water, which is unusual in this horizon in the Turner Valley. No further work is being done at present, pending a study of the peculiar conditions at this well, which is stated to be totally unlike the normal Turner Valley crude naphtha producers. It is possible Miracle's No. 2, LSD 16, Section 5-19-2w5, left standing at 5,558 feet pending completion of No. 3, will now be deepened for a test of the same crude oil horizon.

Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, which got the lime at 5,501 feet, is preparing to resume drilling after cementing 6¼-inch casing in the top of the lime. This test is on the LSD west of Miracle's No. 3 and there is some speculation as to whether it will encounter crude naphtha, which was struck in large quantities in the offsetting Mercury's No. 1, or light crude oil similar to that in Miracle's No. 3 to the east. Hylo's No. 1 got a comparatively large flow of light crude in the Home sand, and in February bailed a total of 1,861 bbls. while drilling.

Central Turner Valley

In Central Turner Valley, Dome Oils' No. 2, LSD 16, Section 36-19-3w5, is at 5,375 feet and cleaning out bridging to release the wet gas flow. The well is expected to make a small crude naphtha producer when completely cleaned out. Canada Southern Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, is reported again working at 3,827 feet. McLeod Oil Co.'s No. 1, same LSD, is cleaning out around 3,730 feet. Both tests are working in the Madison lime.

Turner Valley Conservation

The first definite step toward government action in relation to natural gas conservation in the Turner Valley Field was taken last week when Premier J. E. Brownlee introduced a resolution to refer the entire question of conservation to the agricultural committee of the Alberta legislature, which includes the entire membership of the house. Premier Brownlee's resolution proposed that the committee investigate the question of conservation along the following general lines: (1) The probable duration of the Turner Valley Field if the existing wastage is continued; (2) the effect of continued wastage on both the price of gas in the city of Calgary as well as upon the investments of the investors in the various companies operating in the valley; (3) whether there should be conservation of gas and to what extent; (4) whether exportation of gas from the valley to either Saskatchewan or British Columbia is feasible or probable within any reasonable time; (5) the extent to which exportation of gas from the province should be permitted.

The committee opened its sessions this week. No definite government recommendation was to be made, nor legislation presented, pending a free discussion and full investigation.

A further report from Frank P. Fisher, technical advisor of the government, was, however, tabled. This supplemental report suggested that all the parties concerned were fairly agreed upon a number of major principles and that it should be possible by legislative action to bring them together on a fair and equitable basis.

The special gas committee of the Calgary city council reported recommending immediate action by the government to stop gas wastage together with the opening of the gas market to all Turner Valley producing companies.

Figures made public by Stanley J. Davies, petroleum engineer, show from March 31, 1931, to February 29, 1932, an aggregate gas wastage from the Turner Valley of 148,940,000,000 feet, which is stated to be sufficient to supply Calgary for about 20 years. The total wastage to February 29, 1932, since the fields started to blow open, is estimated at between 382,940,000,000 and 469,940,000,000 feet. Gas actually sold from the field in 1931 is given at 6,500,000,000 feet. Mr. Davies estimates the reserves at 400,000,000,000 feet, though other experts give a considerably lower figure.

Oil Possibilities to East

The discoveries of oil showings with accompanying water intrusions just below the Ellis-Madison contact in the border area have once more directed the attention of some operators to the possibilities of crude oil in the region directly east of the Turner Valley Field. This is a practically untested area, and operations there have been deterred by the fact that it was regarded generally as an exceedingly deep drilling proposition. A good many operators hold the theory that the Turner Valley wet gas and crude naphtha is derived by vertical filtration from an immense crude oil reservoir underlying the field. The alternative theory was suggested years ago by Dr. J. A. Allen that the wet gas might be derived from a crude oil reservoir by lateral filtration, and in this event the probable reservoir is thought to lie in the more gently folded structures east of the foothill belt.

Tests on the eastern fringe of the Turner Valley Field have gone quite deep without approaching the lime, but it is thought possible farther east the formations may come nearer the surface. The only important test east of the Turner Valley is Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-28w3. This is on the High River-Aldersyde structure south of Calgary and almost due east of a line between the North Turner Valley and Central Turner Valley Fields. This test has been carried to around 5,500 feet without getting the Madison but also without any serious water intrusion. The Aldersyde structure has shown gas in small quantities at comparatively shallow depth, and it is regarded as possible both gas and oil in commercial quantities may be secured in local folds superimposed upon the major structures.

Red Coulee Well

On the Alberta end of the international Red Coulee structure, Devonshire Oils' No. 1, LSD 3-4, Section 10-1-16w4, has resumed work after being shut down since June, 1931. At that time the test was reported down about 1,950 feet. Contract to complete the well has been let to O. R. Lang, and the producing horizon is looked for around 2,550 feet. On resuming work, considerable caving was found below the casing and at last report the drillers were cleaning out a little below 1,200 feet. This is the only active test in the Red Coulee Field.

Moose Mountain Test

On the Moose Mountain structure, west of Calgary, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is at 3,340 feet and cleaning out preparatory to cementing a bad crevice, which had interfered with drilling.

High River Structure

On the High River-Aldersyde structure, east of Turner Valley, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is reported making new hole below 5,500 feet.

Manitoba Gas Test

In the Manitou district, southwestern Manitoba, Commonwealth Petroleums' No. 2, LSD 2, Section 26-2-9w PM, is reported drilling below 1,500 feet.

Drilling in Ontario

In the Dawn Field, Lambton County, Dawn Oil & Gas Co.'s No. 1, NE Lot 25, Concession 9, Sombra Township, is reported drilling at 600 feet after setting the 8-inch casing. Production is looked for in the Dawn gas sand around 1,620 feet.

Michigan-Pacific Oil & Gas Co.'s No. 1, Lot 10, Concession 12, Brooke Township, Lambton County, is reported drilling at 1,945 feet, encountering a great deal of salt.

Shareholders of Ajax Oil & Gas Co. held their annual meeting recently at Toronto when the directors, with F. L. Culver as president, were re-elected. A first dividend of 3 per cent payable April 15 was announced. The company has three deep gas wells in Dover Township, Kent County, and 26 shallow gassers on the Six Nations Indian Reserve near Brantford.

EASTERN FIELDS

(Continued from Page 41)

on the Guyan Valley Bank property in Union district. In Stonewall district, Maebohn and Huffman are drilling deeper their No. 1 on the Mary Pratt farm and have reached 2,108 feet. In Lincoln district, the Wayne United Gas Co. remains shut down at 1,720 feet in No. 40 on the A. W. Wilson heirs farm.

In Logan County the Cumberland Petroleum Co. is drilling No. 5 on the Merrill Coal Co. tract in Chapmansville district and has reached 1,247 feet. The test is shut down for tubing at present. In Logan district the West Virginia Gas Co. is plugging its No. 36 on the Dingess Run Coal Co. lease.

In Putnam County W. H. Kirtley is drilling on the J. H. Cottle farm in Scott district, which has reached 915 feet. In Fayette County Grosscup and Schultz have rigged up for No. 5 on the Black Betsy Coal Co. property in Kanawha district. In Tyler County the Ohio Oil & Gas Co. is rigging up on the A. D. Arnett farm in Meade district.

In Wood County W. H. Bickle is cleaning out his deep test on the W. H. Bickle farm in Lubeck district. This test is deeper than usual in this county, having passed the 4,000-foot mark, and has been shot preparatory to testing that formation. In Walker district the Four States Oil Co. is moving in the tools to start its test on the John Roberts farm. In Williams district, Warren Reed is down 600 feet on the C. S. Reed farm.

In Boone County the Pure Oil Co. has shut down at 2,249 feet in its No. 56 on the Federal Coal Co. tract in Sherman district and is testing the gas. In Washington district, C. P. Jones has made a location on the G. T. Hill farm. In Monongalia County the West Penn Gas Corp. has shut down at 2,570 feet on the Kimble Wood in Battelle district with all water lines frozen.

SOUTHWEST PENNSYLVANIA

No completions were recorded in Southwest Pennsylvania and there are but a few scattered wells drilling in this field. In Cromwell Township, Washington County, Raymond Oril & Co. have started a test on the M. Hazlett farm and have passed the 700-foot mark. On the J. D. Berg farm in Aleppo Township, Allegheny County, C. S. Parks and others have made a location for a second test.

A. E. CROSS DIES

CHATHAM, Ontario, Mar. 19.—A. E. Cross, of Calgary, pioneer Alberta oil operator, died recently at Montreal, aged 71. Mr. Cross had been a resident of Alberta for 48 years. In addition to ranching and commercial operations, he was an associates of A. W. Dingman in the original Calgary Petroleum Products Co. which first tested the Turner Valley, and has been a director of the Royalite Oil Co. since the latter took over the Dingman operations. He was also a director of the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 32)

NATCHITOCHES PARISH

W. M. Coates' No. 1 Ross Olive, Sec. 10-9-10, 660 ft. S and E from cen. of Sec. ..... Location.
W. H. S. Gerson's No. 1 Smith, Sec. 11-10-8, 2,000 ft. N, NE cor. of irregular Sec. 10, in Sec. 11 ..... S.W. and abnd., 585 ft.
W. H. S. Gerson's No. 2 Smith, Sec. 11-10-8, 200 ft. N and 300 ft. W of NE cor. ..... Est. 3,000,000 ft. gas and show S.W. 479 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10.... Dry and abnd. 1,518 ft.
J. A. Keaton's No. 1 Stephens, Sec. 25-10-6, 320 ft. N and W, SE cor. NW NW ..... S.D. 178 ft.
J. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... Dry and abnd. 1,380 ft.

OUACHITA PARISH

Wilson & Mitchell's No. 1 Williams, Sec. 5-16-1,e 330 ft. E, 240 ft. S, NW cor. SW SE ..... D.S. stuck 2,760 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11 ..... Spudded and S.D. 50 ft.

RICHLAND PARISH

National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... S.D. 2,515 ft.

SABINE PARISH

Baird & Hunter's No. 1 Petty, Sec. 11-7-11 ..... Drlg. 1,700 ft.
Keene et al's No. 1 Ezernack, Sec. 2-7-13, 1,070 ft. S, 250 ft. W, NE cor. ..... Drlg. 1,800 ft.
Baird & Stone's No. 1 Quayhaglen, Sec. 11-7-11 ..... Set 6-in. 2,375 ft.
Coates Pet. Co.'s No. 1-B S. S. Martinez, Sec. 3-7-13, 330 ft. S and W, NE cor. SE NE ..... Location.
W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Derrick.
W. M. Coates et al's No. 1 Mansfield Hardwood Lbr. Co., Sec. 36-8-13, SW cor. SE SE ..... W.O.S.R. 2,403 ft.
S. A. Ferrell's No. 1 Haley, Sec. 6-7-12, 300 ft. S and E, NW cor. NW SW ..... Set 10-in. 103 ft.
Frank Foster, Inc.'s No. 1 Stephens, Sec. 20-9-11, 330 ft. S and W, NE cor. NW NW ..... Arrng. set 6-in. 3,358 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 290 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Arrng. set 6⅝-in. 4,772 ft.
E. G. Hall's No. 1 Williams, SE NW Sec. 3-7-10 ..... Derrick.
T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... Reaming to bottom 2,243 ft.
Geo. LeGrand's No. 1 McGough, Sec. 3-8-10 ..... Derrick.
T. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13.... Drlg. 2,983 ft.
A. D. King, tr.'s No. 1 Germain, Sec. 7-7-10, 330 ft. E, 518 ft. N, SW cor. NE NE ..... R.U.
W. F. Lacey's No. 3 McNeely, Sec. 14-7-11, 300 ft. S and E, NW cor. NE NE ..... Derrick.
Jack Lanier's No. 1 Petty, Sec. 11-7-11, 330 ft. N and W SE cor. NE SE ..... Location.
E. F. Neely's No. 1 Cobb & Alford, Sec. 14-7-11, 200 ft. S, 100 ft. E, NW cor. NE SW ..... W.O.S.R. 2,565 ft.
E. F. Neely's No. 2 Clanan, Sec. 14-7-11, 500 ft. N, 100 ft. W, SE cor. SE NW ..... R.U.
Palmer & Smitherman's No. 1 La. Long Leaf Lbr. Co., Sec. 12-7-11, 330 ft. S and E, NW cor. NE SE ..... Location.
Palmer & Smitherman's No. 2 La. Long Leaf Lbr. Co., 330 ft. S and W, NE cor. NE SE, Sec. 12-7-11 ..... Location.
Palmer & Smitherman's No. 3 La. Long Leaf Lbr. Co., 330 ft. S and W, NE cor. NE SW, Sec. 12-7-11 ..... Location.
H. W. Perritt's No. 1 Brown Lbr. Co., Sec. 6-7-10, 330 ft. N and E, SW cor. SW SE ..... Set 6-in. 2,379 ft.
Rowe et al's No. 1 Williams, Sec. 13-7-11, 600 ft. S, 40 ft. E, NW cor. SW ..... Set 10-in. 100 ft.; drlg. 1,700 ft.
Scully & Beach's No. 1 Lafitte, Sec. 13-7-11, 100 ft. S, 660 ft. E, NW cor. NW ..... Derrick.
H. R. Smith et al's No. 1 La. Long Leaf Lbr. Co., Sec. 12-7-11, 330 ft. S and W, NE cor. NW SW ..... Set 10-in. 100 ft.; drlg. 1,187 ft.
H. R. Smith et al's No. 2 La. Long Leaf Lbr. Co., 330 ft. N and W, SE cor. NW SW, Sec. 12-7-11 ..... Location.
J. E. Smitherman's No. 1 Smith, Sec. 7-7-10, 330 ft. S and E, NW cor. NW SW ..... Bailing 3,014 ft.
Southland Drlg. Co.'s No. 1 Frank Martinez, 330 ft. S and W, NE cor. NW, Sec. 11-7-13 ..... Salt water and abnd. 2,525 ft.
Southland Drlg. Co.'s No. 2 F. Martinez, Sec. 11-7-13, 330 ft. S and E, NW cor. NE NW ..... Derrick pattern.
Southland Drlg. Co.'s No. 1 Gilbert Martinez, Sec. 2-7-13, 330 ft. N and W, Sec. cor. SW SW ..... Derrick pattern.
Southland Drlg. Co.'s No. 1 C. E. Patterson, Sec. 2-7-13, 330 ft. N and E, SW cor. Sec. ..... Salt water and abnd. 2,534 ft.
A. F. Tarver's No. 3 Cutrer, Sec. 12-7-11, 1,120 ft. E, 300 ft. N, SW cor. NW ..... R.U.
The Texas Co.'s No. 1-B Grauque, Sec. 10-7-13, 330 ft. S and W, NE cor. SE ..... Salt water and abnd. 2,560 ft.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. 1,200 ft.
C. H. Tuttle's No. 1 Travis, Sec. 13-7-11, NE NW ..... R.U.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

ARKANSAS

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D. 814 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-8 ..... S.D. 1,350 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12 ..... Rigged up and S.D.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,740 ft.

DALLAS COUNTY

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. SE, Sec. 11-9-15 ..... Drlg. 2,569 ft.
Zepp O. & G. Co.'s No. 3 Hillman, Sec. 20-10-13, 180 ft. N, 450 ft. E, SW cor. NW NE ..... Location.

DREW COUNTY

Co-Operative Dev. Co.'s No. 1 Ogles, Sec. 35-15-5, 330 ft. S and E, NW cor. NE NW ..... S.D. 1,890 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... Washing to bottom 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... S.D. 2,800 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D; W.O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. S, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17.. Fishing for D.S. 2,011 ft.
McLean et al's No. 1 L. D. Neely, Sec. 23-15-16, 200 ft. N and W, SE cor. NE SW ..... S.D. 102 ft.

PIKE COUNTY

R. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.
R. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... Coring 2,037 ft.

PRAIRIE COUNTY

Powell Creek O. & G. Co.'s No. 1 Kloss, NE SW, Sec. 3-4n-6w ..... Partly rigged up and S.D.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D. 1,860 ft.

SEVIER COUNTY

Tristate Oil Co.'s No. 1 Grimble, Sec. 34-8-22, 8½ SW ..S.D. 950 ft.

ST. FRANCIS COUNTY

Field & Jones No. 1 F. M. White, Sec. 1-4n-2e, SW cor. NW ..... Drlg. 150 ft.

UNION COUNTY

Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... T.A. 2,134 ft.
Drillers Oil & Dev. Co.'s No. 1 Haynie, Sec. 1-17-16, 200 ft. S, 300 ft. E, NW cor. NW SE ..... Set 10-in. 103 ft.
H. H. Helms' No. 1 C. H. Murphy, NE cor. NW NE, Sec. 31-16-14 ..... Coring 2,624 ft.
L. M. Hill et al's No. 1 J. W. Barnes, Sec. 21-19-16, NE cor. Sec. ..... Derrick.
Sunby et al's No. 2 Perdue, Sec. 33-16-14, 75 ft. S, 150 ft. E, NW cor. Sec. ..... Whipstocked and set 6-in. 1,690 ft; drilled to 1,850 ft.
Wilson & Chapman's No. 1 King, Sec. 3-18-13, 330 ft. N and E, SW cor. NE NE ..... Derrick.
Wilson & Chapman's No. 1-A D. Norman, 330 ft. S and E, NW cor. N½ NE SE, Sec. 3-18-13 ..... Derrick.
Wilson & Chapman's No. 1 K. D. Parker, Sec. 3-18-13, 330 ft. N and E, SW cor. S½ NE SE ..... Drlg. 3,240 ft.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Logan & Elliott's No. 1 Smith, 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... S.D. 4,505 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 1,880 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.

CASS COUNTY

J. F. Morrisey's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... S.D. 3,670 ft.
Davis & Pigg's No. 1 Roy Bryan, SW cor. Roy Bryan 88-ac. tr., Albert H. Lattimer Sur. ..... S.D. 2,860 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.
Olds & King's No. 2 Anthony, John C. Byers Sur. .... S.D. 1,760 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 960 ft.

HARRISON COUNTY

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 250 ft. from E line of 105-ac. tr., Findley Sur. ..... S.D. 4,195 ft.
Ryan Cons. Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur. ..... Derrick.

MARION COUNTY

Baunoch Dev. Co.'s No. 1 Miller, 725 ft. N, 1,470 ft. E, SW cor. H. Fulgram Sur. (was Gist, Claunch & Dodson) ..... Coring 2,932 ft.
Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur... Spudded and S.D.
G. A. Davidson's No. 1 Latham, Wm. Rich. Sur. ..... S.D. 2,394 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in James Hanks Sur. ..... S.D. 3,055 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

SHELBY COUNTY

Carter & O'Brien Bros.' No. 1 Frost-Johnson Lbr. Co., 200 ft. S, 150 ft. W, NE cor. 168-ac. tr., Aaron Castleberry Sur. ..... Location.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ... Coring 3,180 ft.
Harry Elliott's No. 1 Pickering Lbr. Co., 1,000 ft. N, 150 ft. E, SW cor. 361-ac. tr., G. H. Patterson Sur... Swabbing 1,508 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. ..... S.D. 3,334 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., William English Sur. ..... S.D. 2,600 ft.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... S.D. 3,246 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... S.D. 3,393 ft.
Ridgeway et al's No. 1 Polley, Dominguez Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... S.D. 822 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft.
Western World's No. 1 Foster, Billingsby-Jeremiah Bowlin Sur. (was Stephens et al's No. 1 Foster) ..... Reaming 2,250 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 32)

Sabine Prod. Co.'s No. 3 Pearce, Sec. 10-7-11, 330 ft. S and E, NW cor. SE NW ..... Derrick.
Smith et al's No. 1 Hale, Sec. 1-7-13, 330 ft. S and W, NE cor. NW SE ..... Salt water and abnd. 2,535 ft.
Stovall Drlg. Co.'s No. 2 Nulton, 330 ft. N and W, SE cor. SE NE, Sec. 2-7-13 ..... Location.

UNION PARISH

Southern Carbon Co.'s No. 58 fee, Sec. 17-20-4e, 1,557 ft. W, 1,220 ft. S, NE cor. Sec. ..... Drlg. 75 ft.

ARKANSAS

UNION COUNTY—EL DORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... S.D; high wtr. 7,255 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... Washing to bottom 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. 8¼ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1-B Hadley, Sec. 3-18-13, 330 ft. S and W, NE cor. SE NW ..... T.A. 3,545 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur. ....T.A. 2,194 ft.
Nat. Gas Prod. Co.'s No. 1 Cadenhead, 5,219 ft. N, 5,620 ft. E, SW cor. B. C. Jordan Sur. .....Set 12½-in. 40 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. ..Location.

MISSISSIPPI

HINDS COUNTY

James Alexander, tr.'s No. 1 Pullen, Sec. 26-6n-1e, C NW NE .....Derrick.
Belhaven College's No. 1 fee, Sec. 35-6n-1e, 360 ft. E, 210 ft. S, NW cor. SE NW .....Set 10-in. 755 ft.
Ferguson-Fuller et al's No. 1 Cruse, Sec. 34-6n-1e, 420 ft. E, 170 ft. N, SW cor. NW .....Set 6⅝-in. 2,449 ft.
Love Pet. Co.'s No. 1 Interior Lbr. Co., Sec. 2-5n-1e, 90 ft. W, 270 ft. N, SE cor. SW .....Set 6⅝-in. 2,435 ft.
McGuire et al's No. 1 Spring Lake, Sec. 11-5n-1e, 250 ft. N, 450 ft. W, from center of Sec. .....Derrick pattern.

RANKIN COUNTY

Cummins & Montgomery's No. 1 Ivey, Sec. 13-5n-1e, NE Lot 10, Blk. D, E. Jackson Pl., First Addn. ..Derrick.
Meredith et al's No. 1 Strowder, Sec. 12-5n-1e, SE cor. SW NE .....Set 6⅝-in. 2,370 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

HINDS COUNTY

Company, farm and location—	Remarks:
Atkins et al's No. 1 Crane Lawrence, Sec. 23-6n-1e, 300 ft. E, 132 ft. N, SW cor. NE SE	Derrick.
Miss.-Minn. Oil Co.'s No. 1 Edwards Land Co., Sec. 23-6n-4w, 1,200 ft. N and E from center of Sec.	Drlg. 1,055 ft.
Southern Pet. Co.'s No. 1 Wilton (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e	Set 4½-in. 2,498 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 .....T.A. 3,408 ft.

LOWNDES COUNTY

Lowndes County Oil & Dev. Co.'s No. 1 Carr est., Sec. 34-17-16e, 1,320 ft. E, 330 ft. S, NW cor. Sec. .....Rigging up.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E, SW cor. SE, Sec. 25-6n-11e .....S.D. 840 ft.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-15n-17e..S.D. 1,735 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-3e .....Set 6-in. 2,438 ft.
James Alexander, tr.'s No. 1 Ridgeway-McGehee, Sec. 1-5n-1e, 200 ft. N, 320 ft. W, SE cor. NE SE .....Blowing wild 35,000,000 ft. gas at 2,327 ft.
Baker et al's No. 1 Rankinside Dev. Co., Sec. 6-5n-2e, 200 ft. N, 200 ft. E, SW cor. NW SW .....Set 10-in. 115 ft.; drlg 1,620 ft.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Muse & Muse's No. 1 Cotton, Sec. 14-5n-1e, 1,320 ft. S, 200 ft. E, NW cor. NE NW .....Comp. 42,442,000 ft. gas 2,446 ft.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-5-9 .....Derrick.

SHARKEY COUNTY

United Gas Public Service Co.'s No. 1 Lenhart, Sec. 14-14n-6w, 660 ft. N of C of S line of Sec. .....S.D. high water 1,162 ft.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 .....S.D. 2,607 ft.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 35)

BEXAR COUNTY

Amsden-Ingersoll-Miller's No. 1 Strumberg, 450 ft. to W line, 1,020 ft. to N line of tract, 12 miles SW of San Antonio .....T.D. 700 ft.; setting 6-in. on bottom.
Eckert et al's No. 1 Edwards, 150 ft. to N and W lines of farm in Martinez Sur. .....T.D. 1,490 ft.; standing.
Callahan Final Oil Co.'s No. 1 B. H. Buck, 900 ft. to E line, 3,200 ft. to S line of farm, in J. M. McGamley Sur. .....T.D. 650 ft.; S.D.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur. .....T.D. 2,495 ft.; in Edwards, dry.
Jones & Voltz' No. 6 Bonkowsky .....T.D. 650 ft.; drlg.
W. K. Oil Co.'s No. 1 Strum, 150 ft. S of N line ,150 ft. W of E line, John Grant Sur. .....T.D. 150 ft.; drlg.
W. K. Oil Co.'s No. 2 Strum, 150 ft. from S line, 1,051 ft. W of E line, Juan Mantes Sur. .....Drlg.
Schneider, Rees et al's No. 2 Claussen, 13 miles NE of San Antonio .....T.D. 1,330 ft.; S.D.
S. W. Blount's No. 1 S. A. Land Co., I. Perez Sur., 1,000 ft. to N line, 450 ft. to W line of tract .....T.D. 520 ft.; S.D.

CALDWELL COUNTY

Cole & Moseley's No. 1 Pierce, 150 ft. to NW and SW lines of tract, Solomon Seal Sur. .....T.D. 1,300 ft.; drlg.
Kistler, Stivers & Hendrick's No. 1 D. Carter, 400 ft. from NW line of Sur., 300 ft. NE or Creek in I. Allen Sur. .....T.D. 1,485 ft; standing in chalk.
Meyer's No. 1 G. C. and W. Walker, Solomon Seal Sur...T.D. 160 ft.; standing.
C. J. Webster Oil & Gas Co.'s No. 1 McCrory in John Neil Sur. .....Building derrick.

DUVAL COUNTY

John F. Camp's No. 1 Well, 990 ft. NW and 150 ft. NE of cen. of Sur. No. 570 .....Rigging up.
Frank Gravis et al's No. 2 Schallert, 425 ft. to E line, 150 ft. to S line of Blk. 10, Cain & Smith Subd. "A", Sur. No. 255 .....T.D. 1,610 ft.; drlg.
O. W. Killam's No. 1 Peters, 150 ft. from E line, 450 ft. from N line of SE of Sur. No. 1 .....T.D. 2,470 ft.; drlg.
Seacord and Putnam's No. 1 J. W. Johnson, 150 ft. to S and W lines of NW NW, Sur. 44 .....T.D. 200 ft.; drlg.
Smith & Capps' No. 1 Duval ranch lands, 150 ft. from SW and SE lines of Sur. No. 574 .....Derrick.
Suttle et al's No. 1 Bennett, 150 ft. from N and E lines of Sur. No. 44 .....Spudded in.
R. A. Thompson's No. 1 Parr, 2,640 ft. to W line, 12,160 ft. to S line of San Andres grant .....T.D. 3,841 ft.; drlg.

FAYETTE COUNTY

A. D. Becker's No. 1 fee, 972 ft. from N line, 700 ft. from W line of tract in Williamson Sur. .....Location.

GUADALUPE COUNTY

Barnhill et al's No. 1 H. L. Hoffman, 450 ft. to N and W lines of farm, in John G. King Sur. .....T.D. 850 ft.; S.D.
Darst Oil Co.'s No. 1 Hamilton, 1,295 ft. from NW line, 150 ft. from SW line of 40-acre tract in J. H. Williamson Sur. .....T.D. 1,750 ft.; drlg.
Luling Oil & Gas Co.'s No. 1 J. D. Brown, 160 ft. from N line, 450 ft. from E line of tract in C. Wall Sur....T.D. 2,500 ft.; drlg.
Tidal Oil Co.'s No. 1 Black, 1,231 ft. from NW line, 150 ft. from NE line of Valentine Bennett Sur. .....T.D. 1,200 ft.; drlg.

GOLIAD COUNTY

Plymouth Oil Co.'s No. 1 Parks, 5 miles NE Goliad .....T.D. 4,625 ft.; standing.
Hoffman & Gooch's No. 1 Fremme, 600 ft. from N and 1,200 ft. from W line of Peter B. Dexter Sur. .....T.D. 2,279 ft.; cleaned out; at bottom; drlg.
Neal et al's No. 1 J. M. Pettus, 10,700 ft. to S line, 2,500 ft. to E line of Pedro Trevino Sur. .....T.D. 4,565 ft.; standing.

GONZALES COUNTY

Crowder Oil Co.'s No. 1 Preston, 1,000 ft. from W line, 2,000 ft. from N line of W. W. Pace Sur. .....T.D. 200 ft.; standing.
Edmiston & Kirby Petroleum Coo's No. 1 J. W. Ward, Jr., 200 ft. from N and W lines of tract in Dan McKay Sur. .....Derrick up; moving in tools.
Johnson & Mattock's No. 1 J. James, 12 miles NE of Gonzales city, 900 varas from E line, 300 ft. from S line of tract in M. A. Williams Sur. .....T.D. 545 ft.; standing.
Nassamer, Gordon & Waldrop's No. 1 B. Botts, 2,500 ft. from E line, 650 ft. from S line in Sec. 6, Blk. 56, Gonzales Sur. .....T.D. 950 ft.; standing.

HIDALGO COUNTY

Barrett-Kanellos' No. 1 J. B. Brock, 7 miles W and N from Mission (on Monte Cristo road) .....T.D. 3,944 ft.; drlg.
LaJoya Oil & Gas Co.'s No. 1 W. L. Hart, 6 miles W from Mission, north of San Fordyce .....T.D. 4,500 ft; contract depth.
Dayle L. Smith's No. 1, 18 miles W from Edinburg .....T.D. 4,026 ft.; standing, showing gas.
San Roman Oil Co.'s No. 1 J. T. Lomax, 7,500 ft. from S and E lines of San Roman Sur. .....T.D. 2,500 ft.; S.D.
Dayle L. Smith's No. 3 Daskam, SW part of county.....T.D. 1,370 ft.; drlg.

JIM HOGG COUNTY

L. W. Connor's No. 1 Holbien, 150 ft. from N and E lines of Blk. 7, Sur. 7, Holbien Subd. of Las Animas grant .....T.D. 1,805 ft.; set csg.
T. P. Morgan's No. 1 fee, 2,223 ft. to N line, 1,640 ft. to E line of Share 19, Palo Blanco grant .....T.D. 3,960 ft.; drlg.

JIM WELLS COUNTY

Vacuum Oil Co.'s No. 1 Seeligson, 4,500 ft. to W line, 75,000 ft. to S line of Los Jaboncillos Sur. .....T.D. 4,933 ft.; testing sand.

KARNES COUNTY

A. E. Edmiston's No. 1 O. L. Cochran, 150 ft. from S line, 500 ft. from E line of farm in D. B. McConnell Sur. .....T.D. 1,820 ft.; standing.

KENDALL COUNTY

Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale .....T.D. 2,708 ft.; standing.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county .....T.D. 50 ft.; S.D.

KERR COUNTY

George Ball's No. 1 F. A. Karger, 3 miles north of Kerville .....Rig on ground.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28..T.D. 1,312 ft.; standing.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 .....T.D. 5,871 ft.; fishing for tugs.
Verde Oil & Gas Co.'s No. 1 J. D. Witt, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 1,923, Hamilton Sur., 4 miles S from Center Point. T.D. 200 ft. Carried to this depth and abandoned as Herber Oil Co.'s No. 1 J. D. Witt .....T.D. 270 ft.; drlg.

LIVE OAK COUNTY

Coastal Oil Finding Co.'s No. 1 Handley, 1,300 ft. from SE line, 400 ft. from SW line of tract in C. S. Cobb Sur. .....T.D. 3,200 ft.; drlg.
J. A. Harper's No. 1 fee, 2,130 ft. to N line, 510 ft. to E line of farm, J. Pointevant Sur. No. 37 .....Spudded in and standing.
Henderson Coquat's No. 1 Hewitt, 250 ft. from N and E lines of SW of Sec. 5, Thomas Adams Sur. .....T.D. 1,785 ft.; S.D.
Henderson Coquat's No. 2 Sanger, 1,280 ft. NW of No. 1 Sanger .....T.D. 2,472 ft.; cored sand showing oil.

LEE COUNTY

Henderson & Holden's No. 1 Dismuke, 600 ft. to E line, 150 ft. to N line of farm, J. Maxmillan Sur. .....Rigging up.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. .....T.D. 3,890 ft.; S.D.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. ....T.D. 2,300 ft.; S.D.
Chadwick et al's No. 1 Hickey, 1,000 ft. to NW line, 300 ft. to NE line of farm in Varreiman Sur. .....T.D. 20 ft; spudded in.
Washington-Lee Oil Co.'s No. 1 L. Hicket, 1,100 ft. from N line, 200 ft. from E line of tract in J. D. Varreiman Sur. .....Location.

McMULLEN COUNTY

Jacob Buzzini & Pickett's No. 2 Jacob, 150 ft. NW of No. 1 Jacob .....Rigging up.
V. G. Shimmel's No. 2 Hale, 300 ft. S of No. 1 Hale....Rigging up.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera, School Land .....T.D. 2,284 ft.; standing.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 .....T.D. 922 ft.; twisted off drill stem, fishing.

MILAM COUNTY

H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tract in B. Wickson Sur. ....T.D. 3,000 ft.; S.D.
Red Bank Oil Co.'s No. 2-A J. A. Foster, 5,243 ft. to SW line, 150 ft. to NW line of farm .....T.D. 5,403 ft.; abnd.
Frank A. Yeager's No. 1 Hose, 750 ft. from E line, 150 ft. from S line of lease in E. Allen Sur. .....T.D. 1,376 ft.; set csg.

NUECES COUNTY

Camp and Stanolind Oil & Gas Co.'s No. 1 King, 600 ft. to N and W lines of Sec. 23, Richard King farm lots subd. .....T.D. 2,521 ft.; drlg.
C. E. McCarthy's No. 1, W. of Corpus Christi .....Making location.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW, Sec. 175 .....T.D. 2,520 ft.; resuming drilling.

SAN PATRICIO COUNTY

John F. Camp's No. 1 Jackson, SW cor. of SW Sec. 30, 3 miles N from Edroy .....T.D. 3,260 ft.; drlg.

STARR COUNTY

Davenport et al's No. 1 Wells, 20 miles W of Mission....T.D. 1,093 ft.; casing stuck.
R. E. Johnson's No. 1 Goodrich, 1,214 ft. from N line, 1,065 ft. from W line of tract, 1½ miles N of Rio Grande City .....T.D. 1,380 ft.; set csg.
Strauch Oil Corp.'s No. 1 M. E. Salinas, 155 ft. from N and W lines of lease in Porcion 80, Share 38 .....T.D. 1,540 ft.; drlg.
R. B. Suttle's No. 1 Guerra, 2,000 ft. to N line, 270 ft. to W line of Porcion 110 .....T.D. 810 ft.; no report.
Jess Williams' No. 1 Welsh, 1,120 ft. to W line, 1,500 ft. to N line of tract in Pedernal grant .....T.D. 655 ft.; standing.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. .....T.D. 1,210 ft.; S.D.
Fuchs et al's No. 1 Shiffler, 1,000 ft. to N line, 160 ft. to E line of farm, A. C. Caldwell Sur. .....T.D. 921 ft.; abnd.
Ray & Henze's No. 1 Hatech, in C of tract in S. Hamilton Sur. .....T.D. 900 ft.; S.D.
Ray & Orth's No. 1 Lundgren, 550 ft. from N line, 150 ft. from W line of 133-ac. tract in L. Kimbro Sur....Location.

WEBB COUNTY

O. W. Killam's No. 4 Bruni, 5,050 ft. to NE line, 7,675 ft. to SE line of El Ranchito tract, J. V. Borrego grant .....T.D. 1,110 ft.; drlg.
Norden & Morris' No. 1 Gates, 160 ft. from E line, 50 ft. from S line of Blk. 5, Sur. 19 .....Location.
Power & Dettenhalm's No. 1 Cowan & Goss, 1,870 ft. from W line, 1,656 ft. from N line of Sur. No. 1,606..T.D. 405 ft.; standing.
Fansler, Johnson & Peacock's No. 1 Laurel, 425 ft. to N line, 600 ft. to E line of Blk. 10, Sur. 271 .....T.D. 2,160 ft.; drlg.
W. R. Shankle's No. 1 Ellison Furniture & Carpet Co., 150 ft. from SW and NW lines of Blk. 2, Sur. 466...T.D. 2,025 ft.; testing.

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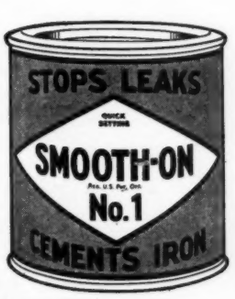

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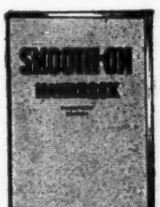

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WILLIAMSON COUNTY

Burns et al's No. 1 Wilder, 1,800 ft. to N line, 200 ft. to W line of tract in H. Owens Sur. ..... T.D. 2,210 ft.; abnd.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown ..... T.D. 1,595 ft.; abnd.
McLean et al's No. 2 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tract in B. Manlove Sur. ..... Rigging up.
McNeil et al's No. 1 W. R. Lane, 450 ft. from NW line, 150 ft. from SW line of 108.4-ac. tract. in T. E. Shell Sur. ..... Set one joint surface pipe.
G. B. Peterman's No. 1 Galler, 1,300 ft. from S line, 150 ft. from W line of 140-ac. tract in H.Y.&B.R.R. Sur. ..... T.D. 1,493 ft.; set csg.
R. S. Wilson's No. 1 Speckles, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland ..... T.D. 1,813 ft.; abnd.

ZAPATA COUNTY

Ballard & Mercer's No. 1 Flores, 500 ft. from NE line, 580 ft. from SE line of Blk. 27, Porcion 37 ..... T.D. 2,110 ft.; drlg.
George Ball's No. 1 Gutierrez in Charco Redondo grant, taken over from Moore et al to deepen ..... T.D. 2,065 ft.; drlg.

ZAVALLA COUNTY

Carpenter & Jenkins et al's No. 1 John Wolf, Sec. 8, Abstract 1,199 ..... T.D. 767 ft.; setting csg. to test show of gas.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 35)

COLE POOL—DUVAL COUNTY

Cole Petroleum Co.'s No. 75 Benavides, 365 ft. from NE line, 150 ft. from NW line, Blk. 8, Sec. 13, Mariana Arispe grant ..... T.D. 3,275 ft.; drlg.

GOVERNMENT WELLS—DUVAL COUNTY

Humble Oil & Ref. Co.'s No. 3 Paul White, 1,650 ft. from S and W lines of Sur. ..... T.D. 1,200 ft.; drlg.
Thomas & Tarver, Inc.'s No. 6 Bishop Cattle Co., 600 ft. E of No. 2 ..... T.D. 2,416 ft.; comp. 300 bbls.

DARST CREEK POOL—GUADALUPE COUNTY

Humble Oil & Ref. Co.'s No. 4-C Denman, 650 ft. from E line, 600 ft. NE of No. 3-C Denman ..... Spudded in.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim ..... T.D. 5,100 ft.; standing.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin ..... T.D. 4,750 ft.; abnd.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell ..... T.D. 5,070 ft.; rig moved off.
Gulf Coast Oil Co.'s No. 1 Perkins and LeGasse, 330 ft. from S and E lines of 245-ac. tract, Sec. 26, Shepard Subd. ..... T.D. 500 ft.; drlg.
Houston Oil Co.'s No. 1 McGregor, 150 ft. from E line, 330 ft. from S line of 100-ac. tract in Sur. 311 ..... T.D. 4,260 ft.; set csg.
Kepley et al's No. 1 Speer and Hocker, 200 ft. from E and S lines of 850-ac. tract. in Speer and Driscoll lands ..... Spudded in.
Rutherford Drilling Co.'s No. 1 Hunter, 150 ft. from S and W lines of 10-ac. tract ..... Rigging up.
Saxet Oil Co.'s No. 5 Weil, 3,041 ft. to N line, 333 ft. to W line ..... T.D. 2,500 ft.; standing.
Saxet Oil Co.'s No. 6 Dunn, 600 ft. S of No. 5 Dunn, 4 miles W from Corpus Christi ..... T.D. 6,386 ft.; drlg.

ARANSAS POOL—SAN PATRICIO COUNTY

Atlantic Oil Prod. Co., to deepen to 6,000 ft. the Welder Oil Corp.'s No. 3 Welder ..... T.D. 3,689 ft.; to deepen.

LOS OLMOS POOL—STARR COUNTY

Bennett Oil & Gas Co.'s No. 1 Seabury et al, Porcion 75.. Moving in.
Coastal Oil & Gas Co.'s No. 1 Kelsey-Bass, 448 ft. to N line, 150 ft. to W line of Tract 52, Sur. 2, Porcion 86.. Location.
Hooks & Weaver's No. 4 Kelsey-Bass, 600 ft. N of their No. 1 Kelsey-Bass ..... T.D. 450 ft.; comp. 25 bbls.
Hooks and Weaver's No. 5 Kelsey-Bass, 525 ft. to S line, 150 ft. to W line of lease ..... Location.
Los Olmos Oil & Gas Co.'s No. 11 Kelsey-Bass ..... T.D. 200 ft.; drlg.
J. A. Tarver's No. 1 A. K. Bass, 150 ft. from N and E lines of lease ..... T.D. 465 ft.; drlg.
Jones & Watt's No. 1 Kelsey-Bass, 200 ft. to N and W lines of Sur. 7, Porcions 75, 76 and 77 ..... T.D. 473 ft.; comp. 20 bbls.
M. A. Landrum's No. 1 A. K. Bass, Sec. 6, 150 ft. to S and E lines of lease ..... Location.
Los Olmos Oil & Gas Co.'s No. 9 Kelsey-Bass, 450 ft. from W line, 150 ft. from N line of SE SW of Sur. No. 6 ..... T.D. 502 ft.; set csg.
Los Olmos Oil & Gas Co.'s No. 10 Kelsey-Bass ..... T.D. 340 ft.; set csg.
R. H. Pursley's No. 1 Seabury, 150 ft. from E line, 4,125 ft. from S line of Share 5, of W two-thirds of Porcion 75 ..... T.D. 439 ft.; set csg.
Quien Sabe Oil & Gas Co.'s No. 3 Kusch, Share 11, W two-thirds of Porcion 75 ..... T.D. 200 ft.; drlg.
Rio Oil & Gas Co.'s No. 1 Kelsey-Bass (formerly carried as Los Olmos Oil & Ref. Co.'s No. 1 Kelsey-Bass) ..... T.D. 910 ft.; standing.
Rio Oil & Gas Co.'s No. 3 Kelsey-Bass, No. 6 Subd., Porcions 75, 76, 77 ..... T.D. 400 ft.; drlg.
San Marcos Oil & Gas Co.'s No. 7 Ivey, 450 ft. S of No. 6 Ivey ..... T.D. 480 ft.; drlg.
San Marcos Oil & Gas Co.'s No. 8 Ivey, 1,355 ft. from N line, 155 ft. from E line of Share 8, W two-thirds of Porcion 75 ..... Location.

WEST COLE POOL—WEBB COUNTY

French Oil Corp.'s No. 7 Benavides, 2,310 ft. from N line, 150 ft. from W line of Sur. 659 ..... Rigging up.

ESCOBAS POOL—ZAPATA COUNTY

E. R. Black & Paul S. Williams' No. 1 Comitas grant, 150 ft. from S and E lines of Blk. 100 ..... Location.
F. M. Blair & Son's No. 1 Montemayor, 450 ft. to N, 150 ft. to E line of Blk. No. 1, Sur. No. 63 ..... T.D. 600 ft.; drlg.
Daniels & Hill's No. 2 Montemayor, 112 ft. from N line, 774 ft. from E line of Blk. 7, Sur. 64 ..... T.D. 1,484 ft.; sand test, dry.
W. M. Lee's No. 1 I. G. Trevino, 150 ft. from S and W lines of Blk. 7, Sur. No. 66 ..... T.D. 1,200 ft.; drlg.
D. M. Shaffer's No. 1 M. Garza, 150 ft. from NE and NW lines of Blk. 56, C. A. Douglas Subd. of Zerro ranch ..... Spudded in.
Trevino Oil Corp.'s No. 1 M. Garza Estate, 150 ft. from NE line, 250 ft. from SE lines of Blk. 36, Douglas Subd., Comitas grant ..... T.D. 1,368 ft.; fishing.
Trevino Oil Corp.'s No. 16-A Trevino, 150 ft. from S and E lines of Blk. 14, Sur. 412 ..... Location.
Winch & Billings' No. 10 Jose Benavides, 500 ft. from NE and 170 ft. from SE line of 31-ac. Pal-Mar tract, Share 35, Fansler Partition of Comitas grant... T.D. 1,478 ft.; comp. 75 bbls.

CHARCO-REDONDO POOL—ZAPATA COUNTY

Bob & Richey's No. 28 Martinez, 990 ft. from SW line, 615 ft. from SE line, Blk. 24, Duke Subd., Charco Redondo grant ..... Spudded in.
Bob & Richey's No. 29 Martinez, 810 ft. from SW line, 360 ft. from SE line of Blk. 24, W. R. Duke Subd., Charco Redondo grant ..... Location.

MARTINEZ POOL—ZAPATA COUNTY

F. H. Etheridge's No. 3 Winch & Henne, 160 ft. from W line, 200 ft. from S line of Blk. 19, Sur. 286..... Location.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 34)

J. E. Burt et al's No. 1 C.O.&G. Texas Co. fee (D.D.), J. B. Stevenson Sur. ..... Set 320 ft. of 4¾-in. screen 2,20[illegible] ft.; tested salt water; temp[illegible] abnd.
Sun Oil Co.'s No. 27 Bender, W. B. Adams Sur., 250 ft. W of No. 26 in line with No. 25 ..... Drlg. shale 4,339 ft.
Sun Oil Co.'s No. 50 River, Robert Dunman Sur., 102½ ft. from W line of W.&P., Blk. 25, due W offset E. M. Wilson's No. 8 W.&P. ..... Drlg. sand and shale 1,396 ft.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur. ..... Sticky shale 6,103 ft.; cmtd. 9⅝-in. csg. 6,083 ft.; drlg plug.
The Texas Company's No. 2 Polk, T. J. Notgrass Sur., 500 ft. NE of No. 2 Polk ..... Drlg. sand and boulders 2,792 ft.
The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2 ... Drlg. sticky shale 3,265 ft.

HULL—LIBERTY COUNTY

Eclipse Oil Co.'s No. 1 Barrow, Jesse DeVore Sur., 50 ft. from N line and 31 ft. from E and W lines 37-acre tract ..... Drlg. shale and sand 4,325 ft.
Republic Prod. Co.'s No. 145 Dolbear, Jesse DeVore Sur., 200 ft. SE of No. 85 and 200 ft. N of No. 61 ..... Drlg. sand and shale 2,500 ft.

PIERCE JUNCTION—HARRIS COUNTY

Anderson & Plummer's No. 4 Whitehead (W.O.) ..... T.D. 4,521 ft.; sidetracking in sandy shale 4,332 ft.
Humble Oil & Ref. Co.'s No. 1 Hooks (D.D.), James Hamilton Sur. No. 52, 904 ft. N of SW cor. along W line of lease and 396 ft. E at right angles ..... Cap rock 4,255 ft.; plugged to 3,896 ft.
Pure Oil Co.-Moody Receiver's No. 3 Herman, Jas. Kopman Sur., 200 ft. due W of C of E line of 25-acre tract ..... Drlg. sand and gravel 468 ft.
Rio Bravo Oil Co.'s No. 21-A Settegast (D.D.), J. Kopman Sur., 400 ft. S and 20 ft. E of NE cor. "A" lease ..... Set 25 ft. 4½-in. screen 4,312 ft.; comp. pumping 300 bbls. daily
Rio Bravo Oil Co.'s No. 23-A Settegast, Jos. Kopman Sur. No. 44, 1,375 ft. S and 200 ft. W of NE cor. "A" lease ..... Set 66 ft. of 4½-in. screen 4,1[illegible] ft.; comp. flowing 950 bbls. P.L. oil; ⅝-in. choke; pressure 1[illegible] lbs. on tubing and 235 lbs. on csg.
Rio Bravo Oil Co.'s No. 24-A Settegast, J. Kopman Sur. No. 44, 1,900 ft. S and 200 ft. W of NE cor. of "A" lease ..... Derrick.
Rio Bravo Oil Co.'s No. 8-B Settegast (D.D.), J. Kopman Sur. No. 44, 300 ft. from N line and 50 ft. from E line of "B" lease ..... Rig up to deepen 3,327 ft.

RABBS RIDGE—FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 3 George, John Rabb Sur., 1,000 ft. due E of No. 2 ..... Cored sand showing oil 5,130-[illegible] ft.; setting csg. to test.
Cullen & West and Gulf Prod. Co.'s No. 3 Lockwood, John Rabb Sur., 1,000 ft. due E of No. 2 ..... Rig.
Cullen & West and Gulf Prod. Co.'s No. 2-B Lockwood, & Sharp, John Rabb Sur., 600 ft. W of No. 1-B .... Derrick.
Gulf Prod. Co.'s No. 1 T. R. Booth, Samuel Kennedy Sur., 475 ft. N of S line of Booth 475-acre tract, due N offset No. 1 Booth-Meyers ..... Drlg. sandy shale 4,451 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 26 Cade, N. Fitzsimmons Sur., 600 ft. S of No. 24 ..... Drlg. sand and lime 3,705 ft.
Yount Lee Oil Co.'s No. 27 Cade, N. Fitzsimmons Sur., 600 ft. N of No. 21 in line with Nos. 22 and 23 ..... Drlg. gumbo 1,320 ft.
Yount Lee Oil Co.'s No. 1 Broussard & Orme, 300 ft. E of N cor. of N. Fitzsimmons Sur., in Martin Dunman Sur. ..... Drlg. sand and lime 4,304 ft.

MOSS BLUFF—LIBERTY COUNTY

Humble Oil & Ref. Co.'s No. 9 Sterling, Jas. McFaddin Sur., 300 ft. W of No. 1 ..... Abnd. in cap rock 1,624 ft.

DAMON MOUND—BRAZORIA COUNTY

Intercoastal Oil Co.'s No. 9 Wisdom, S 45 deg. 312 ft. from NE cor. Lot C, Blk. 62, A. Darst Sur., and thence S 45 deg. 325 ft. in Lot A ..... Drlg. gumbo 1,860 ft.
The Texas Company's No. 3 Cave, 165 ft. NE and 55 ft. N, 45 deg. W from S cor. Lot B, Blk. 73, Wisdom Subd., A. Darst Sur. ..... Drlg. sand and lime 3,735 ft.

BLUE RIDGE—FORT BEND COUNTY

Gulf Prod. Co.'s No. 19 Luscher, Thos. Habermacher Sur., 1,650 ft. from N line and 550 ft. from E line of 490-acre tract ..... Drlg. sticky shale 2,706 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 32 Moore, Jas. Frazier Sur., N of No. 20 ..... Drlg. gumbo 1,846 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 15 Boyt, H.&T.C. Sur. No. 22, 500 ft. E and 500 ft. S of No. 12 ..... Spudded.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Co.'s No. 20 Esperson, C. W. Fisher Sur., 471 ft. from W line and 510 ft. N of No. 5 Esperson ..... Spudded.
Cranfill-Reynolds Co.'s No. 9 Moore's Bluff, M. Duncan Sur., 500 ft. S of N line of Moore's Bluff tract in line with No. 6 Davis and No. 6 Moore's Bluff ..... Location.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 131-A "B" ..... Sand 490-513 ft.; putting on pump.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 14 Mayes, E. H. R. Wallis Sur., 650 ft. due E of No. 11 in line with No. 9 ..... Set 42 ft. of 4¾-in. screen 2,819 ft. and 2,679 ft. of 2½-in. tubing; comp. flowing 600 bbls. P.L. oil, ⅝-in. choke; pressure 175 lbs. on tubing and 690 lbs. on casing; gravity 22.5 deg. (cor.).

MARKHAM—MATAGORDA COUNTY

L. P. Smith et al's No. 2 Hudson, 850 ft. from E line and 1,050 ft. from S line Blk. 15, Henry Parker Sur. ..... Drlg. gumbo 3,096 ft.
United North & South Oil Co.'s No. 1 McDonald, I.&G.N. Sur., Blk. 9, Sec. 5, 460 ft. S and 80 ft. E of NW cor. 35-acre tract ..... Set 1 jt. screen 3,678-98 ft.; tested salt water; to plug back to sand 3,577-87 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 1 Tom Heard (W.O.), Blk. 16, Townsite ..... Cutting and pulling liner 6,462 ft.
Houston Oil Co.'s No. 2 Rose Lambert (W.O.), SE cor. of tract, Townsite ..... Pulling liner to deepen 5,890 ft.
E. M. Jones' No. 1-B Mitchell (D.D.), 250 ft. NW of SE line and 250 ft. SW of Mission River ..... Sand 6,446 ft.; cmtd. csg.
Larco Gas Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2 ... .. Shut down 3,696 ft.
Moody-Seagraves Prod. Co.'s No. 2 O'Connor (W.O.),150 ft. from N line and 508 ft. from W line 62-acre tract ..... T.D. 6,454 ft.; to plug back.
Pearson Properties' No. 2 Ryals (W.O.), 600 ft. from S line and 150 ft. from W line of lease ..... T.D. 5,718 ft.; to deepen.
United Prod. Co.'s No. 5 Mitchell (W.O.), Refugio Townsite, 150 ft. from N line and 438 ft. from E line of tract ..... Rig up to work over 6,446 ft.

SOUTH LOUISIANA FIELDS

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Shell Petroleum Corp.'s No. 2 Heyd, 225 ft. out of NE cor. of Sec. 13-9s-7w ..... Drlg. sand and sandy shale 5,585 ft.

Shell Petroleum Corp.'s No. 1 Fontenot, Sec. 7-9s-6w, 450 ft. due E No. 2 Heyd ..... Sticky shale and lime 5,135 ft.; trying to straighten collapsed casing.

JENNINGS—ACADIA PARISH

Kathleen Oil Co.'s No. 1 Syndicate fee (W.O.), Sec. 46-9s-2w ..... Twisted off 4,025 ft.; shut down.

Reliable Oil Co.'s No. 2 Rawson (D.D.) ..... Drlg. gumbo 2,063 ft.

Mount Lee Oil Co.'s No. 10 Houssierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor. Sec. 47-9s-2w ..... Set 1 jt. screen 8,678 ft.; bailed dry; temp. abnd.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 23 Watkins (W.O.), 2,495 ft. W and 132 ft. N of SE cor. Sec. 13-12s-10w ..... T.D. 2,844 ft.; set whipstock 2,572 ft.; shut down.

Calcasieu Oil Co.'s No. 1 Unsurveyed Island, 1,035 ft. S and 442 ft. E of NW cor. Sec. 24-12s-10w ..... Lime rock 2,865 ft.; set 1 string 4½-in. csg. and 4 jts. screen with 1 jt. of blank between each joint screen; comp. flowing 2,000 bbls. P.L. oil, 335 lbs. pressure, ¾-in. choke; gravity 23.9 deg. (cor.); flow increased to 2,215 bbls.

The Texas Company's No. 9 State, 2,229 ft. N and 918 ft. E of SE cor. of Sec. 13-12s-10w in Twp. 21s-9w .. Location temp. abnd.

The Texas Company's No. 10 State, 2,375 ft. N and 564 ft. E of SE cor. Sec. 13-12s-10w in Twp. 12s-9w.... Location temp. abnd.

Union Sulphur Co.'s No. 1 Gulf land (Humble lease), 284 ft. N 30 ft. W of SE cor. Sec. 11-12s-10w ..... Drlg. shale 5,937 ft.

Union Sulphur Co.'s No. 1 Gulf land (Pure Oil Co. lease), 1,420 ft. N. 400 ft. W of SE cor. Sec. 11-12s-10w ..... Drlg. shale 4,762 ft.

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 2 Martha Moss (W.O.), 120 ft. S and 56 ft. W of NE cor. SE NW of Sec. 8-10s-9w... Tested salt water 6,564-72 ft.; coring deeper 6,653 ft.

VINTON—CALCASIEU PARISH

Gulf Ref. Co.'s No. 1 Gray (D.D.), 125 ft. W and 85 ft. N of SE cor. NE SE of Sec. 33-10s-12w ..... Drlg. gumbo 2,775 ft.

Marrs McLean's No. 13 Gray, 464 ft. E and 460 ft. S of C of Sec. 30-10s-12w ..... Rig.

Vinton Petroleum Co.'s No. 1 Matilda Gray (20 acres), 48 ft. N and 89 ft. W of SE cor. SW NE of Sec. 23-10s-12w (D.D.) ..... T.D. 3,214 ft.; sidetracked 3,016 ft.; drlg. sand 3,053 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 732 fee (W.O.), 965 ft. N and 2,065 ft. W of C of Sec. 29-9s-10w ..... Sandy shale showing oil 3,472-81 ft.

Union Sulphur Co.'s No. 768 fee, 175 ft. N and 188 ft. W of SE cor. SW NW of Sec. 29-9s-10w ..... Drlg. shale and lime 3,010 ft.

Union Sulphur Co.'s No. 769 fee, 295 ft. S, 918 ft. W of C of Sec. 29-9s-10w ..... Drlg. gumbo 2,964 ft.

PORT BARRE—ST. LANDRY PARISH

W. A. Aggers' No. 1 Cochran, 250 ft. S and 250 ft. E of NW cor. of Fractional Sec. 21-6s-5e ..... Drlg. gumbo 496 ft.

Port Barre Oil Co.'s No. 1 Sibille, Sec. 20-6n-5e, 600 ft. S and 124 ft. E of NW cor. 30-acre tract ..... Drlg. gumbo 3,362 ft.

The Texas Company's No. 11 Botney Bay, west offset Gulf Ref. Co.'s No. 1 Wilson & Cochran ..... Rig.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

C. O. Farrington et al's No. 1 Jackson, Brookshire, S. F. Austin Sur. No. 10, 750 ft. NW of Empire Gas & Fuel Co.'s No. 1 Jackson and 250 ft. S of NW line... Cmtd. 10-in. csg. 60 ft.; standing.

Grant & Baker's No. 1 Chesley, W. C. White Sur., 150 ft. from NW line and 150 ft. from SW line of 26-acre tract (northeast of Raccoon Bend Field) ..... Rig.

O'Hara Oil & Gas Co.'s No. 1 Neilius, J. C. Cummings Hacienda Sur., 650 ft. N of No. 1 Schroeder in 18-acre tract, north edge Mill Creek ..... Derrick.

Pomacal & Boletka's No. 1 Schebajsa, 329 ft. N, 78 deg. E of N cor. B. Dottery Sur., near center of SW line of S. F. Austin 4 League on west fork of Mill Creek.. No report.

Vogelpohl et al's No. 1 Trenchman, J. Cummings Hacienda Sur., 319½ ft. from E line, 1,244 ft. from S line of 32¼-acre tract ..... Location.

BRAZORIA COUNTY

W. D. Southerland's No. 1 C. W. Chapman, 294 ft. from S line and 104 ft. from E line of Lot 2, Andrew Robinson Sur. ..... Standing 1,514 ft.

United Oil Syndicate's No. 2 Levitt, John Peske Sur., 75 ft. NW of No. 1 ..... Trying to set 10-in. csg. 156 ft.

BURLESON COUNTY

Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract ..... Standing 2,210 ft.

M. O. & T. Corp.'s No. 1 Rigers ..... Shut down 2,050 ft.

FORT BEND COUNTY

O'Hara et al's No. 1 Brown, Pliant Lake, Wm. Barrett and Abner Harris Sur., 600 ft. out of SW cor. of Brown 600-acre tract ..... Drlg. gumbo 1,606 ft.

Naylor & DeCosta's No. 1 Naylor, 6,350 ft. N, 55 deg. E from SW cor. 653-acre tract in Christman Sur. ..... Cmtd. 20-in. csg. 140 ft.

GRIMES COUNTY

Barnett et al's No. 1 Dodd, Timothy Jones Sur., 280 ft. N. Cobb & Rasmussen's No. 1 Dodd ..... No report.

Blanjo Oil Co.'s No. 3 Cuthrell, Patrick B. O'Connor Sur., 150 ft. S, 10 deg. E of No. 2 ..... Shut down 1,150 ft.

Stanolind Oil & Gas Co.'s No. 1 Mary Sullivan, A. Yeamen's Sur., 998 ft. out of SE cor. of 712-acre tract ... Cmtd. 10-in. csg. 500 ft.

HARRIS COUNTY

Flanigan et al's No. 1 Woodburn, Genoa, August Whitlock Sur., 200 ft. out of NW cor. of tract ..... Location.

Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74 deg. ..... Shut down 2,720 ft.

JACKSON COUNTY

Chicago Gulf Corp.'s No. 4 Druschell (W.O.) ..... No report.

Chicago Gulf Corp.'s No. 10 Druschell, Hayes Sur., 1,300 ft. NW of No. 3 ..... No report.

JASPER COUNTY

Hext Drlg. Co.'s No. 1 Flourney, B. F. Jones Sur., 900 ft. NW of Helmerich & Payne's No. 1 Flourney ..... Reported sand showing oil 3,997 ft.; cmtd. 6⅝-in. csg. 2,200 ft.

JEFFERSON COUNTY

Brown et al's No. 1 M. O. Todd, 200 varas S and 58 varas E of NW cor. of Wm. Carr Sur. ..... Drlg. 2,512 ft.

John I. Pipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 205-acre tract ..... Drlg. 2,225 ft.

C. R. Tolliver et al's No. 1 Tolliver, Duches Sur., 3,500 ft. from W line and 1,500 ft. S of Pine Island Bayou.. No report.

Westbury Oil Co.'s No. 4 West, 450 ft. W and 4,210 ft. S of NE cor. of T. D. Yoakum Sur. ..... Shut down in gumbo 600 ft.

LIBERTY COUNTY

Devore Oil Co.'s No. 1 Finley, 10,500 ft. from E line and 2,000 ft. from S line of A. B. Hardin Sur. ..... Location.

Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; shut down.

J. T. May et al's No. 1 Dunman, J. C. Martin League.... Location.

MATAGORDA COUNTY

Dr. Griffith et al's No. 3 Baer, Big Hill, 5,000 ft. N, 3,000 ft. E from SW cor. of Seth Ingram Sur. ..... No report.

United North & South Oil Co.'s No. 1 Stoddard, J. C. Keller Sur., 150 ft. W and 545 ft. N of SE cor. Blk. 53, Buckeye Townsite ..... Corrected depth 7,828 ft.; sand. showing oil; reaming to set 6⅝-in. csg.

MONTGOMERY COUNTY

Herman Heep et al's No. 1 Cartwright, 2,851.6 ft. southerly along W line from NW cor. of John D. Davis Sur. and thence 450 ft. from said line ..... Drlg. shale 4,412 ft.

Pevehouse Oil Co.'s No. 1 Sealey, Jas. Pevehouse Sur., 1,575 ft. N of N line of Horton & Woodson's 1,562-acre tract and 2,226 ft. E of W line of H.&W. 1,870-acre tract ..... Drlg. sticky shale 3,902 ft.

NEWTON COUNTY

R. T. Briscoe et al's No. 1-A Joe Inman, 1,950 ft. E and 500 ft. N of SW cor. J. M. Scott Sur. ..... Shut down 1,795 ft.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... T.D. 4,063 ft.; sidetracking in shale 3,985 ft.

Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Shut down 2,275 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... Shut down 3,162 ft.

T. B. Höffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Shut down 1,517 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. ..... Shut down 4,627 ft.

J. C. Doxin's No. 1 Peck, 450 ft. S, 150 ft. E of NW cor. of S half of Sec. 24, Bonnie View Ranch Subd., Estaban Lopez Sur. ..... Shut down 100 ft.

Humble Oil & Ref. Co.'s No. 2 O'Connor, John Keating Sur., 12,625 ft. N of S line at right angles and 8,158 ft. W of E line at right angles ..... Cmtd. 13⅜-in. 2,314 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs ..... Shut down 750 ft.

Seven Wells Oil Co.'s No. 1 Foster Lumber Co., 3,000 varas from the E line and 2,000 varas from the S line of H. Alsbury Sur. ..... Location.

TRINITY COUNTY

John Deering's No. 1 J. B. Gibson ..... No report.

Scientific Producers Co.'s No. 1 Thompson, I.&G.N. Sur. No. 47, 50 ft. out of NE cor. of H. K. Thompson 199-acre tract ..... Shut down 1,191 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,258 ft.; cem. 6-in. casing 1,218 ft.; standing.

Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ..... Shut down 5,025 ft.

VICTORIA COUNTY

Bunte et al's No. 2 Keeran, Martin DeLeon Sur., 200 ft. E of No. 1 ..... Derrick.

Houston Oil Co.'s No. 1-A McFaddin, 200 ft. from NE line, 240 ft. from SE line of I.R.R. Sur. No. 20 ..... Derrick.

T. B. Slick Estate's No. 2 McFaddin, J. Varian Sur., 3,500 ft. NW of No. 1 and 1,100 ft. NE at right angles to SW line of lease ..... Spudded.

The Texas Company's No. 4 McFaddin, 86 deg. E. 1,728½ ft. from NE cor. of Andrew J. Gray Sur. in John M. Rine Sur. ..... Gumbo 1,028 ft. cmtd. csg.

WALKER COUNTY

Hart Oil Co.'s No. 1 Thompson Lbr. Co., Jose Ortega Sur., 1,265 ft. S, 1,876 ft. W of SW cor. of J. B. Gibson's 71-acre tract ..... Shut down for repairs 2,090 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... No report.

SOUTH LOUISIANA

ASCENSION PARISH

McElroy Pet. Co.'s No. 2 Lacey, 150 ft. S, 150 ft. W of NE cor. of Sec. 29-10s-4e ..... Shut down 4,515 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.

L. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.

Hill Oil Co.'s No. 1 W. S. Vincent et al, 642 ft. W, 75 ft. N from SE cor., Sec. 25-10s-10w ..... Shut down 3,255 ft.

Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shut down 3,650 ft.

Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w ..... Rig.

CAMERON PARISH

Brownie-Babbette Oil Co.'s No. 1 R. A. Moore, 562 ft. W, 50 ft. S of NE cor. E half SE of Sec. 18-12s-12w.. Gumbo 1,212 ft.; cmtd. 13⅜-in. csg.

EVANGELINE PARISH

Emile LeDeau's No. 1 Vidrine, 260 ft. W and 350 ft. S of NE cor. of Sec. 47-3s-2e ..... Drlg. gumbo 1,000 ft.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 29 Lake Peigneur, Sec. 58-12s-15e, 150 ft. W, NW of No. 28 in direct line with Nos. 26 and 28 ..... Sulphur test.

Warrick Oil Co.'s No. 1 Bernard, 912 ft. N and 150 ft. E of SW cor. Sec. 54-12s-7e ..... Rig.

IBERVILLE PARISH

Standard Oil Co.'s No. 2 Myrtle Grove-Wilbert, Bayou Choctaw, 2,040 ft. N and 600 ft. W of C of Sec. 52-9s-11e ..... Drlg. shale 2,786 ft.

Standard Oil Co.'s No. 2 Gay, Bayou Choctaw, 4,500 ft. N and 600 ft. E of SW cor. SE of Sec. 52-9s-11e..... Drlg. hard sand 5,047 ft.

Standard Oil Co.'s No. 7 Schwing, Bayou Blue, 1,359 ft. N and 1,856 ft. E of C of Sec. 74-9s-10w ..... Drlg. gumbo 4,370 ft.

LA FOURCHE PARISH

Pop Oil Co.'s No. 1 Esponge Vizier, Sec. 26-21-22e, 78 ft. N, 289 ft. E of The Texas Company's No. 4 L.L.&E. ..... Oil sand 3,711-19 ft.; cmtd. 6⅝-in. csg. 3,710 ft.

State Prod. Co.'s No. "D" W. H. Stark, 1,935 ft. S and 1,550 ft. W of NE cor. Sec. 72-15s-15e ..... Sulphur test.

The Texas Company's No. 4 L.L.&E., Leeville, Sec. 26-21s-22e ..... Sandy shale showing oil 3,722-46 ft.; cmtd. csg.

POINTE COUPEE PARISH

Grand Bay Oil & Gas Co.'s No. 1 Moniotte, 10,140 ft. S and 13,450 ft. E of NW cor. Twp. 5s-11 in Sec. 34.. Shut down 310 ft.

TERREBONNE PARISH

Freeport Sulphur Co.'s No. 1 Wurzlow, 1,200 ft. N and 2,600 ft. W of SE cor. Sec. 8-22s-18e ..... Drlg. 600 ft.

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e ..... Water sand 5,075 ft.; standing.

The Texas Company's No. 5 State, Dog Lake, 2,270 ft. S and 450 ft. E of NW cor. of Sec. 5-22s-16e ..... Rig.

The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 5 State Lake Pelto, 1,505 ft. N and 1,539 ft. W of SE cor. of Sec. 8-23s-18e..... Abnd. in cap 2,206 ft.

The Texas Company's No. 10 State, Lake Barre ..... Location.

The Texas Company's No. 12 State Lake Barre ..... Drlg. rock 2,596 ft.

The Texas Company's No. 14 State Lake Barre ..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 2 Alliance Trust Co., Gueydan 1,-875 ft. E and 950 ft. S of NW cor. of Sec. 34-11-1w... Drlg. fine sand 3,402 ft.

WEST FELICIANA PARISH

Putnam Synd.'s No. 3 Como Plantation, Sec. 51-1s-14w... Shut down 2,449 ft.

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CENTRAL WEST FIELDS

(Continued from Page 41)

Corp. in Section 8, Liberty Township, is down about 3,200 feet, and will probably be abandoned. A shallow well may be drilled near this location.

Knox County—O. A. Thayer is drilling on the Anna Sproat farm in the NW of Location 290, Busseron Township.

Laporte County—No. 1 John Siddles, drilled by H. J. Hauck and others in Section 4, Lincoln Township, is drilling at about 1,500 feet.

Orange County—C. W. Reichard is drilling on the Fred A. Cleveland farm in Section 30, Orangeville Township.

Perry County—No. 1 William Dotson, drilled by Hughes and others in the SW of Section 13, Clark Township, was completed a dry hole. The Margaret Taylor test drilled by Bolyard and others in the SW cor. of Section 19, Henderson Township, is down 520 feet.

Pike County—P. C. Andrews completed a 50-bbl. well on the E. Loveless farm in the NE cor. of Section 23, Logan Township, the sand being found at 1,299 to 1,351 feet.

Ripley County—The American Industrial Gas Corp. has drilled through the Trenton in its test on the Herman Siepert farm in the NE of Section 10, Laughery Township.

Spencer County—E. M. Treat Co. has made a location for a second well on the Catherine Bretz farm in Section 3, Ohio Township. In the NW of Section 8, same township, the Maxwell Petroleum Co. is starting a well on the Anna Hawk farm. Steffy & Grass abandoned No. 1 Gus Sauter in the NW of Section 3, Huff Township, at 1,050 feet. No. 1 Phillips, drilled by Medley Brothers in the same township, was also dry.

Sullivan County—No. 2 Alva Marts, drilled in the SE of Section 29, Curry Township, by Fred Bays was dry at 557 feet. No. 1 Dolpha Sluder was completed by Pierson and others in the NW of Section 20, Curry Township, where a 1,500,000-foot gas well was found at 253 feet. Other wells will probably be started nearby.

Switzerland County—A small gas well was completed by F. C. Bakes and others on the Lawrence Cooper lease in the SE of Section 16, Craig Township. The owners of this well are attempting to find a market for this gas in Vevay.

ILLINOIS

H. V. Daugherty, Charleston, Ill., writes that there is one well drilling 3 miles north of Lerna, in the southern part of Coles County, by Walter Cline on the A. D. Hildreth farm, Section 27, Lafayette Township, where the tools are through the cap rock at 860 feet, and have a fishing job, due to trying to shut off a cave from 516-36 feet, where there were good showings of both oil and gas. This oil is now coming around the tools, and is estimated to be 1 to 2 bbls. per day, and is very high-grade green oil. Mr. Daugherty is going to drill three-fourths of a mile southwest of Farmington, Ill., which is 8 miles southeast of Lerna well, NE NE Section 20, Pleasant Grove Township. Three-quarters of a mile northwest of this location there is a gas well that has 25 pounds pressure at 132 feet in the first break of the lime. Another well is to be drilled south of Gays, Ill, northwest of Lerna.

H. V. Daugherty was formerly of Denver, Colo., and is a wildcatter. He drilled two wells on the George Faskins farm, SE NE Section 30, Milan Township, Monroe County, Michigan, which showed about a barrel each, then moved his outfit to the W. Farrow farm, SE NW Section 13, Riga Township, Lenawee County, Michigan, in the Ottawa Lake vicinity, where he found a nice gas pressure but went into water in the Trenton and abandoned the hole. The latter well was drilled under the name of the D.O.H.I. Oil Co.

KENTUCKY

The only area attracting attention at this time in Western Kentucky is in the northern portion of Hart County, near the town of Priceville, where the pay sand is found around 700 feet, and while the wells are not as prolific as those found in the Legrande Pool, near Horse Cave, they are well worth going after, as the oil is of a very fair quality. The largest producer of late in this county was H. Z. Clark's well on his lease near Bonnieville, which is reported with an initial of 200 bbls. On Green River Island, the Treasure Island Oil & Gas Co. is reported to have struck a nice flow of gas. Near Hazlerig on the Geralds farm, a well is reported good for 60 bbls. initially and in the same county, while on the Jess Puckett farm, a well rated at 80 bbls. was reported by unknown parties.

In Ohio County, Miller and others' test on the Massie Brothers farm, 2 miles north of the Cane Run Pool, developed into a dry hole at 670 feet.

One of the busy spots of Kentucky during the early spring will be in the northern and northwestern parts of Hart County. Indications are it will extend north into Hardin County, where some years ago it was announced there was a large structure, and undoubtedly Hardin, Meade, Larue, Nelson and Bullitt Counties will be given tests. Green and Taylor Counties, to the east of Hart County, have only had a few tests, and several years ago some nice gas wells were uncovered in Taylor County, the work being done in this county, when the Bowling Green and Scottsville areas were being drilled.

CALIFORNIA FIELDS

(Continued from Page 40)

making preparations to put its well No. 1 in Section 28-26-28 on the beam at 1,626 feet, following the inability to secure a natural flow.

Dudley Ridge

The Tulare Basin Gas Co.'s No. 1 Goodfellow in the Dudley Ridge district of Kings County was completed during the early part of the past week flowing 8,346,000 feet of dry natural gas per day from 1,192 feet, the hole having been finished with a 4¾-inch liner carrying 20 feet of perforated. This new well, located in Section 2-23-19, was subsequently shut in, the pressure gauge at the present time showing 601 pounds. The inability of operators in the Tulare Lake Dudley Ridge district to dispose of current production of natural gas has a tendency to reduce drilling operations although a little new work is being started from time to time. The Milham Exploration Co., believing that there will be a market for dry natural gas in the not far distant future, has mapped out a drilling program involving the Buttonwillow gas field of Kern County and has proceeded to carry this plan to fruition. Drilling operations will not only be limited in extent but will be consistent over the next year or so. The Milham, discoverer of the Kettleman Hills oil field and the Buttonwillow gas field, is grading location for No. 21, a new well to be drilled on property held by the Southern Pacific Land Co. in the latter field in Section 7-28-23. The company has finished several gas wells in the Buttonwillow Field within the past few months but in every case they have been shut in immediately subsequent to completion due to the inability to dispose of current production.

KANSAS FIELDS

(Continued from Page 31)

and potentials have not as yet been worked out.

Rush County, with the Greenawalt-Otis area, is a one-well pool with a potential of 200 bbls. a day and an estimated 3,500 prospective acres, discovered in August, 1931. Kingman County has the Skelly-Cunningham area with one well and a potential of 255 bbls. with 1,600 acres prospective, discovered in January, 1931.

Stafford County, with the Richardson area, has two wells and a potential of 3,000 bbls. and 2,000 acres. It was discovered in October, 1930.

Cowley County

Hinkle and others made location for No. 1 Burtrand, Lot 11, Block 2, College Hill Addition to City of Winfield, SE cor. SW SE Section 22-32-4. Roth & Faurot made location for No. 2 College, Lot 11, Block 35, College Hill Addition, NE cor. NW SE Section 22-32-4. Deal and others' No. 1 Cranston, SE cor. NE SW Section 22-32-4, Lot 9, Block 30, Highland Park Addition to City of Winfield, has been completed for 300 bbls. in Siliceous lime 3,301-06 feet.

Ellis County

Mid-West Refining Co.'s No. 36 Furthmeyer, SE cor. Section 25-12-16w, has been completed for 50 bbls. in sand 3,269-92 feet.

Ellsworth County

Gypsy Oil Co.'s No. 1 Kozisek, SE cor. Section 16-16-10w, is moving in.

Greenwood County

Mathews & Rex made location for No. 1 Lewis, NW cor. SE Section 8-24-12. McGinnis and others' No. 1 Burk, SW cor. NE Section 10-24-8, is dry and abandoned at 2,458 feet.

Harvey County

Mid-Kansas Oil & Gas Co. is building the rig for No. 1 Duerksen, SE cor. NE Section 19-22-3w.

McPherson County

Dickey Oil Co.'s No. 2 Williams, SE cor. NW Section 26-19-2w, has been completed for an estimate of 500 bbls. in chat 2,894-2,960 feet. Shell Petroleum Corp.'s No. 1 Johnson, SE cor. SW SW Section 35-19-3w, topped chat at 2,984 feet, drilled to total depth 3,046½ feet and completed for an estimate of 300 to 600 bbls.

Rush County

W. M. Moore Oil & Gas Co. made location for No. 1 Hall, C SW Section 1-18-16w.

Sedgwick County

Gypsy Oil Co. made location for No. 6 Hamant, SE cor. NW NW Section 14-26-2. Continental Oil Co.'s No. 1 Goodrich, SW cor. NE SW Section 16-26-1e, has been completed for 490 bbls. in Viola lime 3,341-47 feet. National Refining Co.'s No. 4 Murdock, C SE SE Section 18-27-2, pumped 175 bbls. from chat 2,950-65 feet.

Douglas County

C. F. Hewett's No. 1 Dodder, NW cor. SW Section 7-15-18, is spudding.

Classified Wants

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ROYALTIES in the territory of coming big development in Kansas, Stafford, Barton, Ellsworth, Kingman and Stevens Counties, core drilled. Also producing royalties. Special service to brokers. Send for list. James R. Haynes, Grantville, Kans.

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OIL INFORMATION, service reports, Okla. City Field, showing Potentials, Allowables, Productioin and Pipe Line Runs. Price $5.00 per month. Clyde Kelly, 608 Perrine Bldg., Okla. City, Okla.

FOR SALE—Halleys ranch lease 40 acres, mineral rights included. Section 12, Block B-12, Northeast quarter Winkler County, Texas. Rent 15 cents acre. 3 years to run. John Loferski, 2253 S. Sacramento Ave., Chicago, Ill.

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CLASSIFIED DEPARTMENT

The Oil and Gas Journal

TULSA, OKLA.

Expect Warm Weather to Aid Demand

Chicago Has Strong Undertone Awaiting Seasonal Improvement in Consumption. Important Freight Rate Changes

By Robert C. Conine

Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Mar. 21.—It's up to the weather now to decided whether or not the gasoline tank car markets are to continue in strength, according to observers here. Rumors are heard that the jobbers are on a buying strike, and that Mid-Continent refiners are moving practically no material, but the plain fact is that gasoline consumption has been retarded considerably by unfavorable weather after the markets and jobbers, as it turned out, made premature moves to begin spring operations. A major refiner said Monday: "We don't think that the jobbers hope to break down the markets by refusing to buy, but we do know that a week of good motoring weather will start the orders coming, no matter what theories on economics are in vogue among buyers."

A marketer, who could easily fill a 100-car order from his Chicago bulk plant, said: "With scarcely an exception I have found that the marketers in Chicago district are greatly cheered by the more conservative operations of the refiners. Of course those who are outside the marketing business, or oil brokering as some say, point out that tight gasoline markets relieve the refiners of dependence upon marketing agencies. When the demand is brisk, they say, the refiner doesn't have to bother with the additional sales forces he enlists when he turns to a marketer. Be that as it may, from my own experience of 20 years in the district I still find cause to appreciate the lowering of gasoline production. In the matter of the service we render I can say that I have offered a refiner (who has a phobia for marketers) $10 more per car than he is now getting for his gasoline and I can make a profit on it. The more obvious reason why we like to see an advancing market and a strong one is the simple fact that jobber buying is never favorable except under those conditions. When the jobber is able to say 'I'd better stock up before the price goes up another eighth or a quarter of a cent', then is the time when our telephones keep us busy. As to the proposition that marketers have 'good pickings' when the price structure is riddled, the answer is that the only advantage which has accrued from the unfavorable selling conditions has been that practically all of the marketers who are still in business have become much better business men. Our collections are better than they have been in years, and I know of several marketers who have purged their books of as much as 20 per cent of their accounts. Let the refiners keep up their good work and when the real spring demand shows up they shall have their reward."

Tight Gasoline Markets

Some of the marketers in Chicago district believe that the consuming season this year will be marked by unusually tight markets for the principal product. They point to the poor earnings shown by the oil companies and express the opinion that some drastic revisions in refining and marketing operations will be seen as imperative. On the crude oil side, observers are more assured that East Texas and Oklahoma City are safe and that the support of a stronger crude oil market is scheduled to keep the gasoline markets entirely out of danger. Other market students who are not especially noted for optimism do not hesitate to say that they expect a low of 6 cents this summer.

There is some confusion in the district in connection with the recent action of the Interstate Commerce Commission on freight rates. The rate changes are mixed and in some points the cost of shipping gasoline advanced while that of shipping fuel oil and gas oil dropped. Generally, it may be said that the effect has been to advance the cost to the Wood River and the Tulsa refiners, and to place the East Texas operators more on a par with the Mid-Continent. The move, as it is now viewed, also benefits refiners in Chicago district, although it does not extend their advantage beyond Fort Wayne as a district point. Marketers who have specialized on differential shipping must revise their schedules as various points which formerly enjoyed lower rates have been advanced as much as half a cent a gallon. Group 3 freight rate revisions for five principal points follow: Gasoline, kerosene and distillate, per gallon: Detroit, advanced from 3.76 to 3.83 cents; Cleveland, advanced from 3.76 to 3.83 cents; Indianapolis, advanced from 2.77 to 2.90 cents; Memphis, reduced from 2.94 to 2.18 cents; Louisville, advanced from 2.87 to 3.04 cents. Fuel oil and gas oil, per gallon: Detroit, reduced from 3.49 to 3.44 cents; Cleveland, no change from 3.5 cents; Indianapolis, reduced from 2.5 to 2.48 cents; Memphis, reduced from 2.38 to 1.96 cents; Louisville, advanced from 2.65 to 2.74 cents. On March 15, the Indiana State Commission boosted the freight rates on petroleum products for intrastate movement, and suspended the advance on the same day.

White Third Grade

When mention was made in these columns several weeks ago of the fact that a major company was introducing an uncolored third grade gasoline in various parts of the territory, it should have been noted that the company in question was White Eagle Oil Corp., which has a 15,000-bbl. skimming and cracking plant at Augusta, Kans., and a 4,500-bbl. skimming plant at Casper, Wyo. Its territory includes Kansas, Nebraska, Minnesota, Iowa and South Dakota. Rumors have since developed to the effect that Standard Oil Co. of Indiana is planning to substitute a white gasoline in the territory for the Stanolind Blue. For that matter, Standard of Indiana is already marketing a white third grade gasoline throughout North Dakota (where there are legal restrictions) and parts of Kansas, and it is probable that before the marketers are able to convince the public of the undoubted advantage of coloring the price competition gasoline, the white gasoline will be substituted at several points in South Dakota, Minnesota and Iowa. Another refiner who operates a 16,000-bbl. complete plant in Oklahoma has indicated that he will make the change to the uncolored third grade if the competitive move does not collapse.

A majority of the major sellers feel that the third grade gasoline must be colored for the protection of the consumer and the refiner. The coloring prevents substitution of the low octane, higher endpoint price competition material for the antiknock regular grade. Another point to be considered is the fact that the third grade, which is usually a straightrun product and much more amenable to treating than the higher octane cracked gasoline, will not only show no impurities if it is uncolored, but will have a sparkle which is lacking in the regular grade which gives better engine performance. In Chicago district oil trade circles, it is felt that the current movement to leave the third grade uncolored will be short-lived, and that the colored material will soon replace the white gasoline at the points now involved. Suits restraining the state from enjoining the sale of colored gasolines other than Ethyl have so far been decided in favor of the marketers seeking to sell a colored gasoline.

Service Station and Tank Wagon

With the exception of Detroit, at all of the important points in the territory the service station and tank wagon markets were in good position Monday and without disturbance. On March 14 the tank wagon posting was reduced 2 cents to 12.5 cents at Detroit, following an earlier cut in the service station price. The third grade was reduced to 11.5 cents. The price drop was brought on by price cutting competition on the part of an importer of 3,000,000 gallons of Rumanian gasoline. Sunny Service Oil Co. reduced the posting 2 cents under the price of the majors, and this move was met. The Rumanian gasoline tested in Chicago laboratories has an octane number of 68, but in some manner the impression has spread in Detroit that this gasoline has an octane number of no less than 76. It is believed that sentiment for the proposed 1-cent tax on imported gasoline has become acute in various quarters.

Talking New Refineries

Conversations in Chicago district oil trade circles mention the possible construction of three refineries in the territory. Two of these in Chicago district, and one at St. Louis. It is understood that a group of marketers in Louisville, Ky., are seriously engaged in a survey with the view of building the Chicago and St. Louis refineries, while Chicago interests are considering estimates on the cost of either a skimming plant or a combination skimming and cracking unit in Chicago.

Gasoline Contracts

What the outcome of this year's developments in the making of contracts will be none will venture to say, but it is the opinion of most of the marketers that this year will see a much more active spot market than in the past, with a proportionate decrease in the contract movement. However, if the gasoline tank car markets reach the levels which are now freely predicted, the advantage of having a contract will make itself felt. Monday the gasoline tank car markets appeared to be marking time until the advent of better weather.

Gasoline Tank Car Markets

A close check Monday failed to reveal any quantity of gasoline which might be classed as distress material. One marketer was offering three cars of U. S. Motor grade at 3¼ cents, and this gasoline was transit material; another marketer was willing to turn over a few cars at an eighth below the low published price for ready money. Elsewhere one and two-car lots could be taken slightly under the ruling price low, but nowhere did it appear that there was any real selling pressure. The reported strengthened position of the Mid-Continent refiners is having the effect of giving the Chicago district markets a good tone in spite of the fact that there is little material moving. Prices quoted Monday were: U. S. Motor, 3½ to 3¾ cents; 60-62 400 endpoint gasoline, 3⅝ to 3⅞ cents; 64-66 375 endpoint gasoline, 4 to 4¼ cents; fighting grade aviation, 5½ cents; 68-70 360 endpoint gasoline, 4¼ to 4⅜ cents. The price on the aviation gasoline is nominal and will probably remain so until the approach of July when the large contracts make their appearance. The 375 endpoint material shows an advance of an eighth of a cent as does also the 360 endpoint gasoline.

Naphtha Markets

The naphtha tank car markets figure as one of the brightest spots in the refined products lists. A clearing up of the naphtha situation is reflected in an eighth of a cent advance for all of the naphthas with the exception of the blending material which is facing an advance in natural gasoline market. The removal of a number of disturbing elements appears a certainty Monday, and the disappearance of price cutting tactics on the part of certain operators promises to justify the view that the prices of special naphthas should be considered in the light of the expensive products they replace in industry. Naphtha tank car prices Monday were as follows: 50-52 450 endpoint blending naphtha, 3¼ to 3½ cents, with the higher octane material in brisk demand and selling as high as 4 cents; cleaners' naphtha, advanced from 5⅜ and 5⅞ cents to 5¾ and 6 cents; lacquer diluent, both grades, advanced from 9 and 9¼ cents to 9⅛ and 9⅜ cents; rubber solvent, advanced from 5¾ and 6⅛ cents to 5⅞ and 6⅜ cents; Stoddard solvent (300-410 with over 100° flash), advanced from 4⅞ and 5⅛ cents to 5 and 5¼ cents; petroleum thinner from 4⅜ and 4⅝ cents to 4½ and 4 cents; V.M.&P. naphtha, from 5¼ and 5½ cents to 5⅜ and 5⅝ cents; petroleum spirits, from 3⅞ and 4¼ cents to 4 and 4⅜ cents.

Kerosene Markets

Some expansion in kerosene movement is looked for as soon as the spring planting season opens and these markets, reflecting likewise the better position of the refiners, continue strong in tone and with better prices quoted. Last season the kerosene business suffered from the abnormally low tank wagon markets in U. S. Motor grade gasoline for which the farmers were required to pay no excise tax. Prices Monday were, for the 41-43 water white kerosene, 2⅝ to 2⅞ cents, and for the 42-44 water white material, 2⅞ to 3 cents.

Distillate, Gas Oil and Fuel Oil

Marketers have not been able to ignore entirely some differential dumping which has taken place in the 38-40 distillate of lighter than 1 N.P.A. color, and the price has moved down an eighth of a cent from the low of last week. The price for resale on several hundred cars of the material has been little better than 1½ cents. Monday the price to the trade was 1⅞ to 2⅛ cents. The 32-36 straw and the 38-40 straw are unchanged. Some sellers have been unable to meet the cold test on zero 28-30 fuel oil and have been furnishing a 30-32 gravity material at 60 cents. The price of the 28-30 zero fuel oil Monday had moved down to a range of 52½ to 57½ cents. Some betterment is noted in the 18-22 and the below 18 gravity fuel oils, the first advancing to a range of 27½ to 30 cents, and the latter to a range of 22½ to 25 cents. The 32-36 industrial gas oil dropped down an eighth of a cent to a range of 1 to 1¼ cents.

Several refiners and marketers are understood to be having difficulties with the railroads on the matter of billing distillates as gas oils to take advantage of the lower freight rate. The distillates are charged on the same basis as gasoline, while gas oils go on the fuel oil rate.

W. I. PELFORD DIES

SHREVEPORT, La., Mar. 19.—William I. Pelford, master mechanic of the Standard Pipe Line, Inc., died here this week from pneumonia.

Markets Stronger in East Coast Area

Prices Advance on High Octane Gasolines and Steam Refined Stocks. Proposed Duty on Imports Market Factor

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Mar. 21.—Refined products markets in the East Coast area developed a definitely stronger undertone during the past week, and there were evidences of pending price advances of major products. The gasoline market at the refineries, which had shown signs of sagging during the past fortnight, developed a firmer feeling during the week, and with a continuance of present market conditions there is every likelihood of fractional price advances in the near future. While the local gasoline market, from the statistical standpoint, is less favorable than was the case a fortnight ago, higher prices at the Gulf, together with well-maintained demand, have combined to exert a more bullish influence in East Coast market circles.

While there appears to be a general belief in East Coast circles that an import tariff will be imposed on petroleum and refined products, the benefits of such a step, in so far as East Coast refiners are concerned, will be nullified to some extent by substantially larger shipments of California gasoline to the Atlantic seaboard during the spring and summer months. In addition to this renewed competition from California, there is a disposition on the part of refiners in this territory to believe that considerable quantities of U. S. Motor gasoline under 65 octane number will be unloaded in this territory by Group 3 and Gulf Coast refiners as soon as warm weather is definitely at hand. All of these conditions tend to complicate the market outlook for refiners in the East Coast zone, but despite these developments, sentiment here remains decidedly on the constructive side.

Refiners are closely watching the fuel oil market, which is expected to be the first division of the refined products group to reflect the affects of the import tariff, if finally adopted by Congress. The bunker oil situation has already tightened up to some extent in the East, and a general impression prevails that an early advance in the posted price basis is in sight. The present quotation, 90 cents per barrel at refinery terminals, is the lowest in the history of the industry. While gasoline and lubricants are essentially the "big money" products of the refiners, in so far as operating and marketing profits are concerned, a bunker oil market below economic levels has a considerable influence upon the earning position of refiners and marketers operating at the big seaport bunkering points, and a fair refining and marketing profit on bunker "C" and Diesel oils means to many the difference between operating at a loss and breaking even or better under current conditions in the markets for gasoline and other products.

A large number of tankers are now loading Mexican and South American oil for shipment to the United States, and it is expected that weekly receipts during the next month or so will show sharp increases. Every effort is being made to move available stocks of crude and refined from these points to storage at points within the United States before an import tariff, if enacted, can be made effective.

East Coast refiners are expected to have considerably more cracking capacity before the end of the year, rumors of impending improvements at refineries in this territory indicating the installation of considerable new equipment for the manufacture of high octane number motor fuel. The companies reported contemplating expansion along these lines have not as yet announced their plans, but negotiations for new construction are understood to be in progress.

Refinery Gasoline

Strengthening in the position of the gasoline market in Mid-Continent area and at the Gulf has developed a corresponding tone of firmness in the local market, and while posted prices have not been advanced, shading is less frequent and there is some likelihood of an early fractional mark-up in the posted price schedule.

U. S. Motor gasoline of less than 65 octane number is posted at 5¾ to 6 cents per gallon in tank car lots at terminals. While supplies were freely offered during the previous week at 5½ cents per gallon, there is relatively little of this material now available, and unless the present market trend should undergo a radical reversal, it is expected that this week will see the last of 5½-cent gasoline. Refiners are interested in reports to the effect that low octane number gasoline will be shipped in considerable quantities from the Gulf to the Atlantic seaboard during the coming summer months. These reports, if borne out by later developments, would tend to indicate a marked revival in third grade gasoline marketing.

The market for U. S. Motor gasoline of 65 octane number and higher is also firmer this week. The posted price holds at 6½ cents per gallon in tank car lots at refineries, and while some material can be had at 6¼ cents, it appears that the 6-cent product, which was available in liberal volume during the previous week, has been all absorbed, and it is not expected that 6¼ cents will be quoted for very long. Leading refiners are decidedly strong in their price views, and are holding the market at 6½ cents, with a fair demand reported.

Jobbers, who had been inclined to hold off the market during the past fortnight, anticipating a general decline, have again come back for stocks in a larger way and are carrying a large gallonage in storage.

The market for gasoline at the Gulf for shipment to Atlantic ports has been advanced to 5 cents per gallon for April loading, this quotation being a half cent over the figure at which business was being done recently. California refiners are quoting 4 cents per gallon, f.o.b., for gasoline for intercoastal movement.

Tank Wagon Gasoline

The only change reported in the local market during the week was an advance of one-fifth cent per gallon in Brooklyn by Standard Oil Co. of New York. The new tank wagon price will be 10½ cents per gallon and the new service station quotation 12½ cents per gallon, exclusive of tax in both instances.

Aside from this, the local market situation remained unaltered throughout the week. The undertone was somewhat stronger, however, and it appeared likely that an early advance was in prospect for the entire East Coast territory.

Present indications point to a strong revival in the marketing of "third grade" gasoline during the coming summer season. Refiners who are not equipped with cracking units capable of turning out motor fuel of 65 octane number or higher are finding it increasingly difficult to market their output in domestic markets, and with export buyers beginning to call for high octane ratings on their purchases, the problem of marketing will be intensified for many marketers. The third grade market, therefore, is the latest resort for these sellers, and it is feared that the domestic market will be virtually flooded with low octane number and, consequently, low-priced motor fuel during the summer months.

Price differentials between regular grades of gasoline and the leaded premium quality fuel are being maintained, but refiners and marketers alike are speculating upon the possible effect of high octane number gasoline on the sale of the leaded product. The situation in this respect, it is felt, offers many interesting possibilities.

With high gasoline tax rates lending further encouragement to the bootlegging of motor fuel, it is expected that East Coast marketers will make a determined effort this year to have their respective states intensify their inspection services, with a view toward the curtailment of tax dodging as much as possible. Tax evasion in gasoline sales reacts as much to the disadvantage of legitimate markets as it does on the treasuries of the various commonwealths, and oil companies are stressing this phase of the situation in their contacts with state officials.

Kerosene

A prolonged spell of cold weather throughout the East has substantially increased kerosene demand, and East Coast refineries have been busy in getting out tank car shipments. The market for 41-43 water white remains unchanged at 5¼ to 5½ cents per gallon, but refiners are showing an increasing tendency to hold for the outside figure.

Gallonage in the kerosene tank wagon market has also been on the increase during the period under reviw, and prices have continued well maintained in all parts of the territory. Refiners look for a good spring business in kerosene, and predictions as to the probable price tendency during the next few months are generally on the bullish side.

Fuel Oil

Bunkering business has shown a little improvement during the past week, and the refinery market is stronger at 60 cents per barrel. Sentiment in trade circles is decidedly bullish, and predictions in some quarters indicate the probability of a 70 or 75 per cent market in the near future.

The price trend in the bunker fuel oil market, naturally, hinges to a considerable extent on the tariff question. Imposition of an import duty of 42 cents per barrel, the suggested rate, would probably bring about an immediate upturn in posted prices for bunker fuel oil, although the advance, it is believed, would not be on a par with the import rate.

The entire bunker oil situation remains clouded with uncertainty, however, pending the outcome of the tariff agitation, and marine operators, who will be seriously affected by any sharp advance in bunker oil quotations, are deferring plans until the tariff situation is settled. It is generally felt, however, that American refiners, in the event of an import duty on petroleum, will not be able to realize the full amount of the protective duty without the probability of a serious loss in tonnage, assuming, of course, that advances in foreign bunker oil prices do not materialize in keeping with any increase here.

Diesel Oil

The situation with respect to the outlook in Diesel oil parallels that of the bunker "C" oil market closely. The spot Diesel oil market remains quotably unchanged at $1.30 per barrel, and for the first time in many months the market is characterized as "firm to strong" at that price. Gallonage in the Diesel oil division has held up fairly well during the week, in so far as marine sales are concerned, but volume in industrial markets has continued along rather restricted lines.

Gas Oil

East Coast refinery holdings of gas oil have been reduced somewhat in recent weeks, and, from a statistical position, the market is in better shape than for some months past. Holdings of gas and fuel oils as of March 12 totaled 6,293,000 bbls., as compared with 6,500,000 bbls. at the close of the previous week and 6,887,000 bbls. on February 27. With refineries continuing to curtail their runs, further decreases in gas oil stocks are looked for.

The local tank car market for 28 gravity plus recycled gas oil is unchanged at 3½ to 4 cents per gallon, with a moderate movement reported.

Furnace Oils

With many parts of the Atlantic Coast territory experiencing record cold weather during the past week, a sharp increase in furnace oil demand developed. Refineries in the Bayonne area increased their tank car shipments substantially, and the market held firm at 3½ cents per gallon for 32-36 gravity oil and 4½ cents for 36-40 oil.

Retail markets were also strong, with tank wagon quotations remaining unchanged.

Furnace oil marketers, who normally at this time would be contracting a year ahead, are deferring the naming of contract prices, pending definite action by Congress on the question of an import duty. A tax of 42 cents per barrel, as proposed at the present time, would probably be reflected in higher furnace oil prices for the 1932-33 season, and marketers are unwilling to contract until they have had an opportunity to cover their own requirements.

Lubs

Cylinder oils were again advanced in the local market last week, following the naming of higher prices for prompt shipment oils by the refineries. Spot 600 steam refined is 1 cent higher at 21 to 22 cents per gallon, with 650 steam refined showing a corresponding gain at 23½ to 24 cents per gallon, with 600 and 630 Pennsylvania flash oils up one-half cent per gallon at 24½ to 25 cents and 27½ to 28 cents, respectively. Warren 600 E is 1 cent up at 23½ to 24 cents per gallon, with Oil City E following the advance, prices on the latter grade being 22½ to 23 cents per gallon. Bright stocks were again advanced 1 cent per gallon during the week, the new prices being 30 to 31 cents per gallon for light 140-150 oil, and 29 to 30 cents per gallon for the dark grade.

There was a good demand prior to the latest advances, which have tended to slow down buying somewhat until consumers have an opportunity to test out the stability of the market at the new price level.

Continued quiet was reported in the market for the industrial oils, quotations remaining unaltered on both pale and red oils.

Wax and Petrolatum

There were no developments of general importance on these minor products last week, and quotations were without change. Domestic buyers were inquiring for fully refined in slightly better volume, but export business had fallen off somewhat.

In the petrolatum market, business was confined largely to the shipment of material against standing contracts, new business being of light amount.

Export Market

There were no cargoes reported closed at the Gulf during the week, but prices

were showing a stiffening tendency, in response to the firming up of the Group 3 and Gulf Coast gasoline markets. Foreign buyers are believed to be holding off the market, pending settlement of the tariff issue, with the small amount of business available going to Rumania or Russia, both of which have been underquoting the Gulf.

Considerable intercompany business in Venezuelan and Mexican crude has been reported during the past week, with major companies bringing in foreign crude in large volume in anticipation of a tariff. While these transactions have been at private terms, the open market for Panuco crude is up to 42 cents per barrel, 4 cents over the recent low point, with Venezuelan crude quoted at 48 cents, 2 cents per barrel over recent quotations.

East Coast refiners have been getting slightly more export demand for cased gasoline and kerosene, and lubs have also moved in better volume for export. South America has been one of the principal buyers, but this business has all been in less-cargo lots. Definite indications of the probability of an import tariff, or actual enactment of the measure, is expected to bring considerable business into the market.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended March 12 totaled 1,836,000 bbls., a daily average of 262,286 bbls., compared with 1,587,000 bbls., a daily average of 226,714 bbls. for the previous week, and a daily average of 271,857 bbls. for the four weeks ended March 12. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	170,000
Boston	132,000
New York	788,000
Philadelphia	339,000
Others	343,000
Total	1,772,000
Daily average	253,143
At Gulf Coast ports—	
Galveston district	64,000
Total	64,000
Daily average	9,143
At all United States ports—	
Total	1,836,000
Daily average	262,286
Daily average four weeks	271,857

Distribution of total imports is as follows:

Crude	1,072,000
Gasoline	165,000
Fuel oil	599,000

Petroleum Exports

Exports of major refined products showed some increase during the past week, and inquiries were more numerous. With conditions pointing to the possibility of an import duty on crude and refined petroleum, with a resultant jump in domestic refined products quotations, export buyers have been advising their foreign connections to anticipate their requirements wherever possible, and a fair volume of spot sales is looked for during the next few weeks.

The following table shows refined petroleum exports from the Port of New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended—		
	Mar.12	Mar.5	Feb.27
Gasoline	60,000	25,000	260,000
Naphtha	510,000	8,000	500,000
Kerosene	45,000	70,000	48,000
Fuel oil	2,000	160,000	9,000
Lubricating oil	1,600,000	620,000	1,005,000
Petroleum, refined	690,000	80,000	195,000
	Pounds		
Petrolatum	50,000	.....	.....
Paraffin wax	1,350,000	645,000	775,000
Refined	.....	.....	460,000
Scale	515,000	410,000	.....
Lubricating grease	890,000	675,000	425,000

Export operators are seriously concerned over the oil tariff situation and its probable effect on their business. Higher costs on oils in the domestic market, it is believed, will result in driving considerable export business in refined products to the major companies with refineries in the Caribbean area.

Possibility of the revival of the export association as the medium for American participation in the revised Kessler plan for world stabilization of the petroleum industry has also aroused considerable interest and discussion in export trade circles.

California Oil Receipts

There was only one cargo of California gasoline received at Atlantic or Gulf ports during the week ended March 12, the cargo coming into New York. This was a daily average of 16,143 bbls. for the week and an average of 15,250 bbls. daily for the four weeks ended March 12. There were no receipts of California petroleum during the preceding week.

One cargo was reported cleared during the week from California for the East Coast, this being 67,000 bbls. of gasoline and 8,000 bbls. of lub oil on the tanker Solana (Associated Oil Co.) for New York.

SEEK TO INCREASE RECOVERY FROM SANDS

(Continued from Page 43)

placing agents appear to be those that alter the aqueous solution-silica interface either through a high degree of adsorption or through chemical reaction at the interface.

At present the supply of crude petroleum is greater than necessary to meet all demands in the United States. Scientists and industrialists are convinced, however, that the demand eventually will overtake the supply. Sooner or later, therefore, motorists and other consumers of petroleum products will "feel the pinch" if something is not done to decrease the waste.

So Professor Bartell and his associate are attacking a problem, the solution of which will be of vital importance to the people of the United States before many years, in their opinion.

Flooding of oil wells to drive out previously unrecovered oil is accomplished by drilling new holes in the vicinity of old wells and pumping water or salt water solutions into the sand below.

Professor Bartell explained that water has a stronger surface attraction for silica sand than oil. In other words, water wets the sand more than the oil. However, pure water becomes sluggish in its action and the rate of displacement soon becomes too slow.

"This effect may be due in part to the saturation of water with some of the more soluble constituents of oil, or to highly adsorbed constituents of the oil on the silica surface which are not easily removed by water," he said.

Money to support this research at the University of Michigan has been supplied by the American Petroleum Institute through a research fund donated by the Universal Oil Products Co.

OKLAHOMA FIELDS

(Continued from Page 30)

it was known as the Smith or Cromwell sand.

The producing area of the field is now a mile long, north and south, while its width is undefined. The field was opened by the Eason Oil Co. more than a year ago with its well in the SE cor. SW SE, Section 19-7-8, which was heavily prorated at that time to slow up development.

The Empire Oil & Refining Co. has the majority of the acreage in the proven area of the pool, and has the largest number of producing wells. It has eight wells in Sections 19 and 30-7-8, and two drilling tests.

The producing horizon in the Fish Pool, is found at approximately 2,980-3,070 feet, and the oil tests 38 gravity A.P.I. Some express the opinion that a deeper pay horizon may be found some day either by deepening or twinning the producing wells.

A new test was announced in the Fish Pool, F. L. Coogan and others' No. 1 Moran, NE cor. SW, Section 30-7-8. It is located southwest of the Tulsa Oil Co.'s No. 1 Davis, NE cor. SW NE, Section 30-7-8, which flowed 1,835 bbls. of oil in 24 hours on its potential test from a total depth of 3,052 feet.

Jarvis & Holm's No. 2 Fish, SE 4[illegible] NW NE, Section 30-7-8, made 3,645 bbls. of oil in 24 hours on its potential test at a total depth of 3,069 feet.

Mid-Continent Petroleum Corp.'s No. [illegible] Bruner, NE cor. NW SE, Section 9-7-[illegible] an old gas well drilled deeper in the Hol[illegible]enville Pool, Hughes County, has been shut in at a total depth of 2,954 feet. It made 300 bbls. of oil the first 15 hours. It was first completed as a 45,000,000-foot gas well at 2,900-30 feet.

Leasing Operations Quiet

Leasing of acreage in the State is quiet and the chances for a wildcat drilling campaign during the summer is getting slimmer. At the last Indian lease sale in Muskogee, held March 17, only 27 of 98 tracts were sold. The leases were auctioned to the highest bidders.

Indian Territory Illuminating Oil Co. paid a top price of $16 an acre for [illegible] acres in Okfuskee County, in Section 18-11-7. The 27 tracts sold comprised six leases in Seminole County, four each in Okfuskee and Creek Counties, three each in Wagoner and Okmulgee Counties, two each in Carter and Garvin Counties and one each in Tulsa, Pontotoc and McClain Counties. Eighteen Hughes County tracts were offered, but none sold.

It is believed that only a few major oil companies are interested in taking leases and then only on checkerboard leases bought for protection. The price of leases is lower than in years. Some of the active areas include Seminole, Pottawatomie, Garfield, Garvin, Logan, Payne, Oklahoma and Kingfisher Counties.

Seminole Production

The production from the Greater Seminole area for the week ending March 1[illegible] was approximately 142,280 bbls. a day. The Seminole Field, which includes the first 12 pools listed below, averaged 103,285 bbls.

Pool—	Bbls.
Little River	19,2[illegible]
East Little River	1,9[illegible]
Carr City	15,3[illegible]
Maud	2,1[illegible]
Mission	6,8[illegible]
Bowlegs	12,7[illegible]
Earlsboro	13,6[illegible]
South Earlsboro	3,7[illegible]
East Earlsboro	12,8[illegible]
Seminole	10,8[illegible]
East Seminole	1,1[illegible]
Searight	3,4[illegible]
Total	103,2[illegible]
Allen	8,1[illegible]
Asher	[illegible]
Wanette	4,2[illegible]
Konawa	5,3[illegible]
Sasakwa	1,7[illegible]
St. Louis-Pearson	17,7[illegible]
Grand total	142,2[illegible]

Carter County

Frank Lundy and others' No. [illegible] Spragins, NE cor. NW SW Section 8-1s-2w, has been abandoned at 2,500 feet.

Creek County

Fogel & Marble's No. 2 Wright, NW cor. SE Section 7-19-8, is a rig. Bryan Petroleum Co. moved a machine in for No. 1-A Scott, SE cor. SW Section 13-19-9. Johnson Oil & Refining Co.'s No. 3 Bible, SE cor. SW Section 20-19-9, is rigging up. Curtis Oil Co. and others made location for No. 1 Bucktrot, C SW SW Section 17-17-10. Holmes Oil Co.'s No. 1 S. Deere, SW cor. SE SE Section 25-19-9, has been completed for 12 bbls. on the pump in Red Fork sand 2,158-8[illegible] feet, total depth 2,206 feet. F. R. Bi[illegible]ingslea's No. 2 Bissett, NW cor. SE NW Section 22-15-8, has been completed for 170 bbls. in Bartlesville sand 2,865-9[illegible] feet.

Haskell County

Midwestern Oil & Gas Co.'s No. [illegible] Rabon, C SW SW Section 33-8-19, has been completed for 50,000 feet of gas in sand 1,098-1,148 feet, total depth 1,20[illegible] feet.

Hughes County

T. Atkins' No. 1 Charles, NW cor. SW SW Section 19-9-9, is rigging up to deepen from total depth 3,383 feet. Holmes Oil Co.'s No. 1 Adams, NE cor. SE SW Section 31-9-9, is a location.

Muskogee County

E. Price's No. 1-A Warner, CSL SW NW SW Section 13-14-16, is spudding.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 30)

Harris & Haun's No. 1 Watson, SW NW Sec. 25-23-1w...Drlg. 2,045 ft.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1 .....Location.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 .....S.D. 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w .....Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w .....S.D. 852 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE Sec. 16-6-19 .....S.D. 1,542 ft.

LINCOLN COUNTY

Hilton Phillips' No. 1 Phillips, SW NW, Sec. 2-14-3.....Drlg. 3,550 ft.
Mote et al's No. 1 School Land, NW cor. Sec. 36-17-5....Drlg. 1,410 ft.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor. Sec. 21-11-3w .....S.D. 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w .....S.D. 5,515 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5 .....S.D. 1,950 ft.

PITTSBURG COUNTY

Ruby Ann Oil Co.'s No. 1 George, CEL NW SE, Sec. 3-4-16 .....Drlg. 435 ft.
Tape Oil Co.'s No. 1 Fulton, SE Sec. 34-7-14 .....S.D. 1,700 ft.
J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17 .....Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 .....Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 .....Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w.....C.O. 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w.....S.D. 3,420 ft.

WASHITA COUNTY

Miley Pet. Co.'s No. 1 Wolfe, NE SW Sec. 23-9-17w.....Rig.
Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w .....Drlg. 2,740 ft.; show oil 2,459-67 ft.; S.D. 2,767 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 .....S.D. 1,365 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1S...T.D. 4,720 ft.; to cement.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 .....S.D. 1,720 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10..T.D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 .....T.D. 740 ft.; plugged back to 459-80 ft.

CARTER COUNTY

Lundy's No. 1 Spraggins, C NE NW SW Sec. 8-1s-2w ....S.D. 2,495 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE Sec. 18-4s-8w .....Location.

MARSHALL COUNTY

Starrett et al's No. 1 Henry, NE NW Sec. 22-7s-6 .....Rig.
Everett et al's No. 1 Agres, SE NE Sec. 14-7s-6 .....S.D. 1,170 ft.
Newman et al's No. 1 Henry, NW cor. Sec. 22-7s-6.....Rig.

McCURTAIN COUNTY

Pramsell et al's No. 1 Wagoner, SE NE Sec. 5-8s-27.....Drlg. 340 ft.
Stampfs et al's No. 1 Harris, SW NW SW Sec. 14-9s-25..S.D. 2,731 ft.
Stewart's No. 1 Patterson, C SE SE Sec. 7-6s-24 .....Drlg. 1,375 ft.

PUSHMATAHA COUNTY

Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-3s-18 .....Drlg. 1,050 ft.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE Sec. 15-3s-5w.....Sand 990-1,004 ft; S.O; S.D.
George's No. 1 Ryan, NW SW NE Sec. 31-3-15.....S.D. 510 ft.

0 feet. E. W. Ladd's No. 1-A Taylor, W cor. SW SW Section 20-16-15, is dry d abandoned at 1,389 feet.

Okfuskee County

Burke-Greis Oil Co.'s No. 1 Grayson, E cor. NW SE Section 32-12-19, an l well being deepened, is fishing for sing, total depth 3,100 feet.

Oklahoma County

Indian Territory Illuminating Oil Co. ade location for No. 7 M.-K.-T., NW r. SW SW Section 35-12-3w, Oklahoma ty Pool. Phillips Petroleum and others ade location for No. 1 Trail, Block 25, ot 36 and 37, Walnut Grove Addition, SL SW SW NE Section 3-11-3w. Locan has also been made for No. 1 August, lock 18, Lots 6 and 7, Walnut Grove ddition, NE cor. SW SW NE Section 11-3w. Anderson & Prichard and oths made location for No. 2 Rayhill, lock 31, Lot 19, Terrace Lawn Addion, SW cor. NW NE Section 10-11-3w. hillips Petroleum Co. and Sunray Oil o.'s No. 1 Haddox is a cellar in Block 2, Fruitland Addition, SE cor. SW SE ection 15-11-3w. Phillips Petroleum Co. s the cellar dug for No. 1 Gates, Block Lot 27, Carney Heights Addition, NW r. NE SW NE Section 22-11-3w. Conental Oil Co. and Anderson and Kerr's o. 1 Volk, CNL NW NW SE Section 5-11-3w, has been completed for 8,510 bls. in four hours on a 6½-inch choke om Wilcox sand 6,402 feet, total depth 500 feet. Phillips Petroleum Co., Vellesley and others' No. 1 Cowell, SE r. NW SW NE Section 22-11-3w, has en completed for 2,783 bbls. in four ours from Wilcox sand topped at 6,488 et, total depth 6,567 feet. T. B. Slick state's No. 1 Dodd, CWL SE SE SE ection 22-11-3w, topped Wilcox sand at 455 feet, had base of Wilcox at 6,555 et, total depth 6,576 feet and was comleted for 5,087 bbls. in four hours.

Okmulgee County

Denton & Marshall's No. 1-A B. Colert, SE cor. SW NW Section 14-14-14, rigging up. J. E. Wallace's No. 4 B. olbert, CSL NW NW Section 14-14-14, rigging up. J. L. Selby's No. 19 A. lint, NW cor. NE Section 26-14-14, is gging up. Iron Mountain Oil Co.'s No. King, SE cor. NW NW SW Section 8-13-15, is spudding.

Osage County

Devonian Oil Co.'s No. 3, SW cor. SE W Section 30-21-10, is rigging up to eepen from the old total depth of 1,992 et. S. A. Murphy's No. 154, NW cor. W SE Section 34-29-10, is dry and bandoned at 1,858 feet after being deepned from 1,657 feet. Corbin & Haver's o. 7, NW cor. SE SW Section 16-23-11, as deepened from 1,684 feet to Burgess and 1,778-92 feet and completed for 15 bls. McCoy and others' No. 3, NW cor. E SW Section 21-23-11, after being eepened from 1,751 feet, has been comleted for 5 bbls. in Burgess sand 1,868-0 feet, total depth 1,900 feet. W. H. Wyman and others' No. 3, NW cor. NE W Section 32-22-8, swabbed 50 bbls. rom sand 2,252-80 feet.

Pontotoc County

Gus Dalaney moved a machine in for o. 1 Russell, SE cor. SW SE Section 9-5-8. No. 2 Harrell, CNL NE SE Section 29-5-8, has been completed for 38 bls. in sand 841-53 feet.

Pottawatomie County

Clara Oil & Gas Co.'s No. 1 Timms, W cor. NW NE Section 1-9-4, is a loation.

Seminole County

Burke-Greis Oil Co.'s No. 2 Henshaw, W cor. NW SW Section 30-8-8, Wewoka Pool, is plugging back from total epth 3,167 feet to rip pipe. Fred L. Cogan and others' No. 1 Moran, NE r. SW Section 30-7-8, is a rig under onstruction. Jarvis & Holm's No. 2 ish, SE cor. NW NE Section 30-7-8, as been completed for 3,645 bbls. in Wapanucka sand 3,005-69 feet.

Stephens County

Loofburrow and others' No. 1 Dare, W cor. NW SW SW Section 1-2s-8w, s a rig. A. A. Peard and James Newand made location for No. 1 Nigh, SW r. NW NE SW Section 11-2s-8w. J. . Chambers and others' No. 2 Dare, NW r. NE SE Section 2-2s-8w, has been completed for 150 bbls. in 14½ hours from sand 1,362-99½ feet.

Wagoner County

R. A. Godfrey and others' No. 1 J. Davis, NE cor. Section 18-16-18, is rigging up. J. E. Martin's No. 1 M. Drew, SW cor. NE Section 26-18-15, has been completed for 60 bbls. in sand 1,062-80 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 37)

standardizing at 2,781 feet after cementing 6⅛-inch at this depth on top of a sand in the basal Mesa Verde which showed for a large volume of gas when drilled into with rotary. Water from above had to be shut off before a test could be made.

Park County

South Park Oil Co.'s No. 1 Milligan, NE cor. SE Section 13-8s-76, Jefferson district, is starting up at 2,680 feet after being shut down on account of the weather. A carload of coal has been received at Jefferson. Snow in the district covered the ground at some places to a depth of 15 feet. This well is 9,600 feet above sea level.

South Park Oil & Gas Co.'s No. 1 Esche, SE cor. NW Section 5-9s-76, is shut down at 2,442 feet.

Rio Blanco County

California Co.'s No. 1 California-Raven, NW SE Section 30-2n-102, Rangely Dome, is drilling below 3,808 feet.

The Department of the Interior has granted extensions on 24 permits on the Piceance Creek Structure, covering 61,000 acres, until the operating company, the Magnolia Petroleum Co., can determine from development which acreage will be included in the primary leases to be taken under the provisions of the oil leasing act. The primary leases will embrace 15,360 acres at a royalty of 5 per cent. The entire field is held under a unit development plan which is about 100 per cent inclusive of permits, leases and royalties, and approved by the department. Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE Section 9-2s-96, gauged 13,000,000 feet of gas at 2,936 feet and proves the structure, but it is to be drilled deeper to test several lower sands. Two or three wells probably will be drilled for gas before the primary acreage is selected. The next well probably will be on the Bellis permit in the E half, Section 15, about 1½ miles southeast of No. 1 Maddock.

Archuleta County

Oil City Petroleum Co.'s No. 1 Fitzhugh, NW SE SW Section 34-23-1e, Chromo Dome, which is bottomed at 717 feet in the Lakota and making considerable gas through water from the Dakota, failed to get a good shutoff and is shut down for fuel. Four feet of snow covers the ground and it probably will be several weeks before fuel can be moved to location. Recent geological work indicates this well is approximately 88 feet lower than No. 1 Crowley, NE cor. Section 2-32-2e, completed as a 300,000-foot gas well at 235-247 feet. As soon as rig on No. 1 Russell is available, it will be moved to a location three-fourths of a mile to the northeast, where it is believed it will be on the axis. Same company's No. 1 Russell, NW Section 35-33-2e, is drilling at 192 feet and expects first objective at 335 feet.

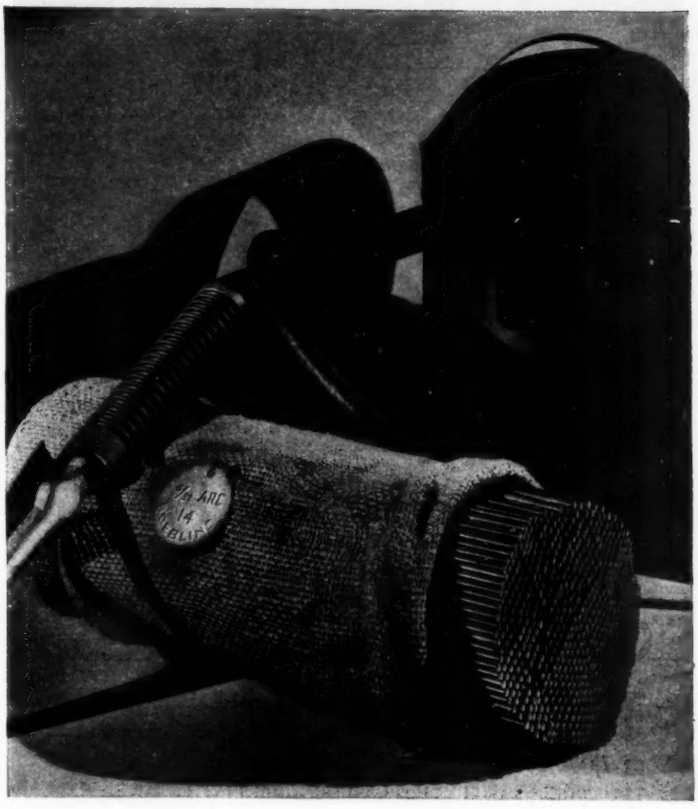
WYOMING

Park County

Midwest Refining Co.'s No. 4 Rosenberg, NE NW NE Section 26-58-98, Frannie Dome, which extends the producing area one-fourth of a mile to the west and found one of the best producers in the field, although it is 532 feet down structure, made 610 bbls. on the pump the first 24 hours.

Weston County

No completions have been reported in the Osage Field the past two weeks. The field has been idle in drilling operations until Tug Oil Co.'s No. 1, NW cor. SW Section 15-46-64, resumed. It is drilling at 2,670 feet. The 6⅝-inch was set at 2,420 feet. An extensive drilling program is expected in the spring, however, as the Osage Trust Co. is reported to



FOR TRUE ECONOMY
and utmost DEPENDABILITY

On many types of welding, tough, strong, absolutely reliable welds are essential. Certainly it is false economy to use any but the best welding wire on such jobs—when welding wire cost is almost invariably insignificant compared with the cost of welding labor.

Roebling Welding Wire is made for those who demand a wire which facilitates the production of welds of utmost dependability—who know that such a wire spells true welding economy. It is custom-made of special welding steel—produced by special methods—and is available for both electric and gas welding.

Test this fine welding wire and convince yourself of its exceptional dependability and economy. Our distributors will gladly supply samples and complete information.

JOHN A. ROEBLING'S SONS CO.
TRENTON, NEW JERSEY

Welding Wire Distributors for Oil Fields

FRICK-REID SUPPLY CORP.
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WHY ROEBLING WELDING WIRE IS OF EXCEPTIONALLY HIGH QUALITY

1. It is a custom-made wire; 2. the steel for it is not made on the ordinary tonnage basis; 3. it is made in small open-hearth furnaces; 4. of special melting stock; 5. and is produced by Roebling's special methods; 6. painstaking care is exercised throughout manufacture.

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THE CUSTOM-MADE WELDING WIRE—FOR EXACTING WELDERS

1520 Pound Rock Pressure Easily Controlled By the SCREW-LIFT VALVE

THE Burdette Well in Tioga County, Pennsylvania, has a rock pressure of 1520 pounds and a capacity of 7,000,000 cubic feet.

The entire control of this well is handled by the lubricated round opening Screw-Lift Valve. The drilling through valve is a 6″ unit, while the remaining valves on the Christmas tree and on the blow-off line are 4″ units.

A one-quarter turn completely opens or completely closes the Screw-Lift Valve and in spite of the pressure here involved no gearing is required. One man with a 5 ft. bar easily opens these valves.

In spite of the long period of operation the valve on this blow-off line is consistently tight. Unusually long operating life, one of the distinctive features of the Screw-Lift Valve, is the result of its rational design and the exceptional quality of its materials and workmanship. Complete dependence can always be placed in the Screw-Lift Valve for safe dependable service.

Write for complete data and prices.

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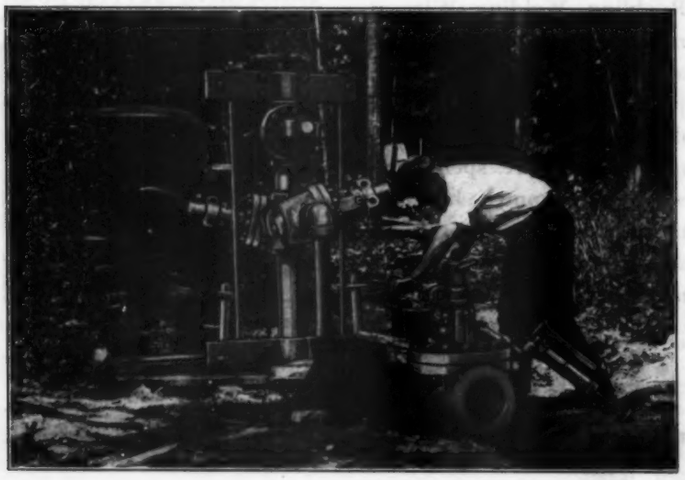


have authorized six wells, Federal Oil Co. four, Hugh Updike two and Wy-Tex Corp. one. Other scattered interests will bring the number up to at least 20.

Natrona County

Mutual Oil Syndicate's No. 2, C SW SE Section 14-35-79, Midway Dome, a diagonal offset to the northwest of the discovery well, is rigged and ready to spud. The discovery well is making from 135 to 240 bbls. per day from the Frontier and is expected to do better when fully conditioned.

Jarvis & McDonald's No. 1 Government, SE cor. Section 31-30-81, Spindletop Dome, which spudded and shut down on account of the weather, has resumed.

Carbon County

Lost Soldier Producing Co.'s No. 1, NE NE Section 25-26-88, Mahoney Dome, which is bottomed at 3,772 feet in the top of the Sundance, will resume April 1. Tools recently were recovered.

MONTANA

Carbon County

Ohio Oil Co.'s No. 2 Montana Industrial, C NW SE Section 11-7s-21, Dry Creek, is drilling at 3,186 feet, and its No. 2 Robinson, C SE SE Section 3-7s-21, is drilling at 440 feet. Same company's No. 1 Caldwell, near CEL Section 12-7s-22, is moving in materials.

Carbon Oil & Gas Co.'s No. 1 McMinn, NW SW SW Section 7-7s-22, is drilling below 2,500 feet.

Ohio Oil Co.'s No. 1 Kuchinski, NW SE NE Section 15-7s-22, Golden Dome, is drilling at 4,710 feet.

McIntyre and others' No. 1 Burger, SW cor. NW Section 24-6s-23, East Bridger, is spudding.

Pondera County

Two new locations were reported in the South Pondera district. Bell & Adams' No. 1 Venetz, NE SE NE Section 31-27-3w, is in new territory, and the Teton Corp.'s No. 1 Jones, C NW NE Section 17-27-4w, is an inside location.

Liberty County

California Co.'s No. 1 Ross, NE SE NE Section 3-33-6e, Utopia district, is drilling at 2,840 feet and carrying the 8¼-inch.

Northland Oil & Gas Co.'s No. 1 Yurman, C SE SW Section 32-33-5e, Liberty district, is drilling below 3,800 feet after a shutdown for repairs.

Glacier County

Fulton Petroleum Co. and Fulton-Blackfeet Petroleum Co. are reported to have been taken over by Blackfeet Petroleum Co. of Seattle, which has been organized with a capital of 1,200,000 shares of no par value, to consolidate these properties with the holdings of Charles Frye and associates. A subsidiary, Milk River Petroleum Co., will take over No. 1 Blackfeet, SW NE NE Section 28-36-12w, at 2,950 feet, install a rotary and complete.

Gallatin County

Montana Gas & Petroleum Corp.'s No. 1 Adams, SE cor. Section 35-2n-1e, Three Forks district, is drilling at 700 feet.

Fergus County

Melton Corp.'s No. 1 Fenholt, SW cor. Section 24-21-17, Winifred district, has resumed and is drilling at 3,080 feet and carrying the 8¼-inch.

Toole County

Askalta Oil Co.'s No. 3 Farbo, C SE NE Section 2-37-4w, Border Field, is a location and will start drilling as soon as weather conditions permit. It is an offset on the northeast to its No. 2 Farbo, which was completed last December for 200 bbls.

Oregon Oil Syndicate's No. 1 Barthelote, SW NE SE Section 20-36-2e, Barthelote district, is bottomed at 2,322 feet and pulling pipe to replace a damaged show.

Yellowstone County

Peter Antonilo's No. 1 Happy Hollow, NW cor. NE Section 21-2n-25, is shut down at 2,470 feet for 5⅞-inch. casing. Casing show was lost in the hole and will be sidetracked.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE Section 31-23-21, Grand County, is temporarily shut down at 5,220 feet.

Diamond Oil Co.'s No. 1, SE NW Section 16-8s-5e, Utah County, is shut down below 3,475 feet waiting for 5-⅞-inch pipe.

Pipe Line Runs

Average daily pipe line runs for the week ended March 19:

WYOMING

	Bbls.
Salt Creek	20,160
Badger Basin	50
Big Muddy	1,450
Byron-Garland	1,300
Dallas-Derby	460
Dutton Creek	70
Elk Basin	570
Ferris	40
Frannie	440
Grass Creek	2,000
Hamilton Dome	740
Hudson	410
LaBarge	920
Lance Creek	90
Lost Soldier	2,550
Midway	90
Osage	1,050
Pilot Butte	20
Rock River	1,700
Poison Spider	30
Teapot	30
Total Wyoming	34,500

MONTANA

Buckley-Border	490
Cat Creek	880
Dry Creek	420
Kevin-Sunburst	3,200
Lake Basin	60
Pondera	1,450
Total Montana	6,500

COLORADO

Florence	340
Fort Collins	920
Iles	730
Moffat	780
Orchard	330
Rangely	11
Tow Creek	320
Total Colorado	3,531

NEW MEXICO

Rattlesnake	720
Hogback	190
Table Mesa	80
Artesia	540
Cap Rock	690
Hobbs	31,293
Jal	905
Lea City	2,037
Eunice	400
Texas Pacific	200
Total New Mexico	37,065
Total Rocky Mountain area	81,597
Total previous week	82,842
Difference	1,255

GEOLOGICAL SOCIETIES TO HOLD MEETING

(Continued from Page 19)

lor, R. W. Harris and Frank Worrel, Cecil G. Lalicker, Charles Ryniker, F. B. Plummer, R. V. Hollingsworth, E. L. Lucas, M. P. White, F. S. MacNeil, R. W. Harris and H. A. Ireland, W. L. Moreman, R. C. Moore and F. W. Rolshausen will be read.

The officers of the American Association of Petroleum Geologists are: L. P. Garrett, Houston, Tex., president; Sidney Powers, Tulsa, past president; L. Courtney Decius, San Francisco, Calif., first vice president; Frank R. Clark, Tulsa, second vice president in charge of finances; and F. H. Lahee, Dallas, Tex., third vice president in charge of editorial work.

Division of paleontology and mineralogy (Society of Economic Paleontologists and Mineralogists): Charles E. Decker, Norman, Okla., president; Joseph A. Cushman, Sharon, Mass., past president; W. S. Adkins, Austin, Tex., vice president; Gayle Scott, Fort Worth, Tex., secretary-treasurer; and Raymond C. Moore, Lawrence, Kans., editor.

Society of Petroleum Geophysicists: Donald C. Barton, Houston, Tex., president; G. H. Westby, Bartlesville, Okla., vice president; John F. Weinzierl, Houston, Tex., secretary-treasurer; Paul Weaver, Houston, Tex., editor; and E. E. Rosaire, Houston, Tex., retiring vice president.

Oklahoma City Geological Society: W. H. Atkinson, president; G. O. Williams, vice president; R. W. Laughlin, secretary-treasurer; W. B. Boyd, recording secretary; and G. C. Maddox, member of executive committee.

Field trips of interest to the visiting geologists have been planned as well as a number of entertainments for the ladies and a golf match for the men.

NORTH AND WEST TEXAS

(Continued from Page 22)

In Section 118, A.T.N.C. Survey, had a good body of sand with good showings of oil from 2,207-12 feet, 2,212-14 feet and 2,214-19 feet, checking with subsurface structure upon which the well is located. This gives reason to expect other pools to be developed from the Canyon series in this part of the county, and probably in Wichita and Young Counties. Deeper drilling in this county is holding attention of all operators in the area, and more of it is expected to be done, and more pools opened in the Canyon pay horizon, in the district. The Wilson test in Section 118 failed to produce, but the logging of good sand bodies and good showings will stimulate deeper drilling in the area.

PANHANDLE

The railroad commission is still considering the petition of the Shamrock Oil & Gas Co. for a designation of its holdings in Moore County, as a separate pool under the new state law. The pool is capable of producing 3,000 bbls. of oil a day. It is situated several miles from the nearest production in the area, and the company contends it has an outlet for its oil, therefore the pool should not be included in the Panhandle proration allowable, but granted a separate allowable.

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Texhoma Natural Gas Co.'s No. 1 Goces, top pay 2,450-2,665 feet, initial production 17,000,000 feet of gas, total depth 2,680 feet.

Gray County

Skelly Oil Co.'s No. 24 Schaffer, top pay 3,185-3,230 feet, shot 240 quarts 3,170-3,256 feet, initial production 300 bbls., total depth 3,256 feet. Sullivan and Ochiltree's No. 1-A Morse, shot 160 quarts 2,802-80 feet, shot second time with 20 quarts 2,860-80 feet, initial production 20 bbls., total depth 2,880 feet.

Hutchinson County

H. Stekoll's No. 5 Whittenburg, top pay 2,940-3,020 feet, shot 100 quarts 2,980-3,028 feet, initial production 250 bbls., total depth 3,028 feet.

Moore County

Texas Interstate Pipe Line Co.'s No. 1-37 Sneed, location abandoned; No. 1-23 Sneed, location abandoned. Texhoma Natural Gas Co.'s No. 4 Coone, top pay 2,765-2,896 feet, initial production 19,000,000 feet of gas, total depth 3,040 feet.

COMPLETIONS IN WEST TEXAS

Culberson County

W. L. Kornrumpf and others' No. 1 W. D. Garren, temporarily abandoned.

Hudspeth County

R. L. Patillo and Ed Welch's No. 1 Mrs. Kate Siegle, temporarily abandoned, total depth 672 feet.

Irion County

Straughan and Adkins Brothers' test, dry and abandoned, total depth 1,505 feet.

Loving County

Slack and others' No. 1 W. B. Lind and others, top pay 4,261 feet, shot 110 quarts 4,222-63 feet, initial production 30 bbls. per day flowing, through casing, total depth 4,265 feet. Phillips Petroleum Co.'s No. 3 Jim Wheat, total depth 4,331 feet, plugged back to 4,330 feet, shot 130 quarts 4,294-4,330 feet, top of lime 4,295 feet, initial production 205 bbls. first 24 hours after shot.

COMPLETIONS IN WICHITA FALLS DISTRICT

Archer County

Brown and Lickey's No. 1 Coleman, dry and abandoned, total depth 2,252 feet. United Producers Co.'s No. 1 Logan, sandy lime 1,200-13 feet, initial production 11 bbls., total depth 1,215 feet.

Baylor County

Consolidated Oil Co.'s No. 1 Portwood, temporarily abandoned, location.

Clay County

Roy C. Ling's No. 1 Wade, plugged and abandoned, total depth 3,527 feet.

Jack County

J. M. Seaberry's No. 1 Showver, temporarily abandoned, total depth 320 feet. Easter Oil Co.'s No. 1 Moore, temporarily abandoned, location. Texas Plains Co.'s No. 1 Wright, dry and abandoned, total depth 922 feet.

Wilbarger County

Bowman Drilling and others' No. 1 Johnson, temporarily abandoned, total depth 2,159 feet. E. B. Lawson's No. 1 Waggoner, temporarily abandoned.

Wichita County

Daubert and others' No. 1 Dobie, dry and abandoned, total depth 1,087 feet. Mid-Continent Holding Corp.'s No. 1-D Burnside, temporarily abandoned, 3,123 feet.

Young County

Beard and Seaberry's No. 1 Cullers, oil sand 560-70 feet, initial production 40 bbls., total depth 570 feet. Fain and McGaha's No. 1 Weems, dry and abandoned, total depth 604 feet. Snoddy and Perry's No. 1 Hested, dry and abandoned, total depth 902 feet. F. E. Webb's No. 1 Robinson, dry and abandoned, total depth 750 feet. D. L. Wolf's No. 3 Wolf, oil sand 873-93 feet, initial production 72 bbls., total depth 894 feet. Nash and Windfohr's No. 3 Graham, oil sand 2,679-91 feet, initial production 50 bbls, total depth 2,691 feet.

COMPLETIONS IN RANGER DISTRICT

Brown County

Shead and others' No. 1 W. F. Curry, dry and abandoned, total depth 1,303 feet.

Palo Pinto County

Dunkell and O'Donnell's No. 1 Simmons, top pay 2,997-3,015 feet, initial production estimated 100 bbls. oil with 2,000,000 feet of gas, total depth 3,015 feet. Prairie Oil & Gas Co.'s No. 1 M. Briggs, dry and abandoned, total depth 1,802 feet.

Throckmorton County

J. D. Barton's No. 1 H. A. Wilhelm, oil sand 727-741 feet, initial production 500,000 feet of gas and 10 bbls. oil, total depth 741 feet.

DAILY AVERAGE CRUDE OIL SHIPMENTS FROM WEST TEXAS

Week ending March 17

Shipments Through Main Trunk Lines

Company, size and location—	Bbls.
Atlantic P. L. Co., 10-in., Houston	18,077
Gulf P. L. Co., 10-in., Ranger	2,864
Humble P. L. Co., 2-8-in., San Angelo	36,907
Humble P. L. Co., 12-in., Station "A"	49,799
Illinois P. L. Co., 2-8-in., Del Rio	24,965
Magnolia P. L. Co., 8-in., De Leon	None
Shell P. L.Corp., 10-in., Cushing, Ok.	31,577
Shell P. L. Corp., 10-in., Houston	19,765
Texas P. L. Co., 12-in., Houston	16,806
Total	200,760
Tank car shipments	None
Shipments to refineries	24,358
Total daily average distribution	225,118
Daily average production (including Lea County, New Mexico)	213,610
Daily average from storage	11,506

HEART ATTACK FATAL TO WORTHINGTON EXECUTIVE

John T. Clancy, an executive of the Worthington Pump & Machinery Corp., Harrison, N. J., died suddenly of a heart attack, March 9, while lecturing at the Engineers' Club, New York, before a meeting of the American Society of Mechanical Engineers. Mr. Clancy was born in New Brunswick, N. J., in 1890. After attending the New Brunswick schools, he studied at Betts Academy, Stamford, Conn.; Bowdoin College, where he was graduated in 1913, and at Catholic University. He became an instructor in mathematics and chemistry at the Army and Navy School, Washington, D. C., and in 1917 he entered the army, seeing overseas service as captain of field artillery with the A.E.F.

In 1919 Mr. Clancy joined the Worthington Pump & Machinery Corp. and in 1923 he became assistant manager of the oil and gas engine sales, the position he had held until his death. He leaves his wife. Interment was in Arlington Cemetery.

DEATH OF DAVID NOTTAGE

David Nottage died on Friday, March 17, at his home in Quinton, Pittsburg County, Oklahoma. A dispatch telling of his death credits Mr. Nottage with having drilled the first oil well in eastern Oklahoma.

Strength—

that is protected against rot and deterioration due to age, improper storage, exposure to the elements, etc., is what you are sure of in every length of

AMCO ALL-WEATHER ROPE

Don't judge a rope only by its appearance; many times rope which has seen little or no service at all has been found to be substantially deficient in strength. Dry-rot is the most serious menace to fibre cordage since its deteriorating effect is usually not apparent until the rope has parted under just an ordinary load. Rot is to Manila rope what rust is to wire cable, only once started its action is far more rapid and destructive.

Among the large rope consumers who are regular users of "AMCO" ALL-WEATHER rope is the U. S. Coast Guard among whose duties it is to bring to port vessels disabled on the high seas. They purchase "AMCO" in sizes up to 12″ circumference, a full coil of which weighs 5200 lbs. By using "AMCO" they get the very best quality procurable in Manila rope plus the strength-protection available only in this improved rope by reason of its being made as nearly Rot-and-Waterproof as is possible.

"AMCO" ALL-WEATHER Best Manila Cat lines, bull ropes and plain laid line are sold by many supply houses in all active oil fields. Inquiries solicited.

Look for this green marker yarn in the dark brown treated rope—it, together with the green burlap covering, identifies "AMCO" ALL-WEATHER Best Manila A. P. I. specifications.

St. Louis Cordage Mills

11th & Soulard Sts. St. Louis, Mo.

ST. LOUIS CORDAGE MILLS QUALITY

EAST AND EAST CENTRAL TEXAS WILDCATS

(Continued from Page 28)

DALLAS COUNTY

Long Creek Dev. Co.'s No. 1 T. J. Lupton, center of 160-ac. tract, 2½ miles N of Mesquite, J. Johnson Sur. ..... Rigging up.
Paris' No. 2 Wilkinson, 2,787 ft. from NW and 3,341 ft. from SW of John P. Anderson Sur. ..... T.D. 1,230 ft.; S.D.
Joe Wilson's No. 1 fee, 600 ft. from N line and 600 ft. from W line of 1,500-ac. tr., Jno. Scroggs Sur. ..... S.D. 1,150 ft.

DELTA COUNTY

Joiner et al's No. 1 W. H. Martin, 330 ft. from N line and midway between E and W lines of survey and lease on 2,749-ac. tract, D. Parker Sur. ..... Location.
Joiner et al's No. 1 Blackwell, 800 ft. S and 150 ft. from E lines of 275-ac. tract, Dunnetelle Sur. ..... Location.
Worthington et al's No. 1 Pejernett, 776 ft. from S and 150 ft. from W in E. Chick Sur., 1½ miles W of Horton ..... S.D. 3,315 ft.

ELLIS COUNTY

Clark-Brooks' No. 1 C. W. Golliday, 300 ft. from S line and 300 ft. from E line of tract and survey, John Bones Sur. ..... S.D. 2,265 ft.
Community's No. 1 Reeves ..... S.D. 300 ft.
E. M. Rogers' No. 1 John Lee Winn, 1,650 ft. from E and 150 ft. from S of Orland, Orlo Wheeler Sur. .... S.D. 1,435 ft.
Worthen Pet. Co.'s No. 1 Cerf, 2½ miles NE of Ennis... T.D. 2,264 ft.

FRANKLIN COUNTY

Tom Harper's No. 1 fee, 150 ft. from N line and 200 ft. from E line of 116-ac. tr., W. M. Dawson Sur. .. S.D. 1,000 ft.

GREGG COUNTY

Abernathy & Kirkpatrick's No. 1 R. M. Wood, center of Lot No. 3, R. H. Hokit Sur. ..... S.D. 3,570 ft.
P. J. Alco's No. 1 F. Thomas, 160 ft. from S line and 150 ft. from W line of 10-ac. lease, C. H. Alexander Sur. ..... Drlg. 1,900 ft.
Barnsdall Oil Co.'s No. 1 Adams, 330 ft. S and E of NE cor. of Shell's Slaton lease, G. W. Hooper Sur.... Spudded.
M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Derrick.
Big Indian Oil Co.'s No. 1 W. R. Nicholson, 330 ft. from S line and 4,783 ft. from E line of tract, M. Mann Sur. ..... Location.
J. B. Bond et al's No. 1 J. H. Alexander, center of S 10 acres of N 20 acres of 50-ac. tract, D. Sanches Sur. ..... Location.
Will Brown's No. 1 E. Choice, 400 ft. due east of Collins' No. 1 H. T. Elder ..... Derrick.
Byrd-Frost Oil Co.'s No. 1 Alexander and Strong, 330 ft. from S and E lines of 26-ac. tract, M. Tennison Sur. ..... Drlg. 3,130 ft.
D. D. D. Oil Co.'s No. 1 Sarah Dansby, 283 ft. from N and S lines and 330 ft. from E line of lease, W. P. Chisum Sur. ..... Location.
Degener & Co., Inc.'s No. 1 Savannah Belle, located on 2-ac. tract, Mary Van Winkle Sur. ..... Moving in rig.
Demotte et al's No. 1 T. L. Bray, center of Blk. No. 8, H. R. Hokit Sur. ..... Drlg. 3,560 ft.
Dodd and Markey's No. 1 J. F. Holt, 615 ft. E and 707 ft. N of SW cor. of 200-ac. tract, H. Edwards Sur... Derrick.
East Texas Refining Co.'s No. 1 J. W. Fuller, 330 ft. from W line and 300 ft. from S line of 50-ac. lease, D. Sanches Sur. ..... Drlg. 2,560 ft.
Faith Oil Co.'s No. 1 Walton, 246 ft. E of W line and 145 ft. N of S line and SW cor. of survey, B. W. Witcher Sur. ..... Waiting on cmt. to set; T.D. 3,625 ft.
Farland et al's No. 1 Alexander, center of 10-ac. lease in center of 50-ac. tract, D. Sanches Sur. ..... Derrick pattern.
B. F. Findley's No. 1 Vine Lodge, center of 1-ac. lease and tract, J. W. Bradshaw Sur. ..... Derrick.
A. B. Gippert et al's No. 1 L. Bailey et al, center of 6¾-ac. lease, James Norris Sur. ..... Derrick.
Glasscock Bros.' No. 1 E. Bade, 157 ft. from S line and 409 ft. from W line of lease, G. W. Hooper Sur. ..... Rig up.
Lewis Godlin's No. 1 E. L. Walker, 330 ft. N of road, 330 ft. from E line of 80.2-ac. tract, M. Dillard Sur... Derrick.
Gulf Production Co.'s No. 1 A. King, 120 ft. E and 330 ft. N of SE cor. of church, John Moffit Sur.... Set csg.; T.D. 148 ft.
Gulf Production Co.'s No. 1 E. L. Walker, 810 ft. N and 370 ft. W of SE cor. of lease, John Tate Sur.... Rig up.
Gulf Production Co.'s No. 1 Nichols, 330 ft. from N line and 344 ft. from W line of lease, D. Dainwood Sur. ..... Drlg. 2,095 ft.
Hastings et al's No. 1 Wallace, due SE offset to Victory Smith's No. 1 Knowles, M. Tennison Sur. ..... Drlg. 2,025 ft.
J. F. Heard's No. 1 fee, 200 ft. SW of Pace's No. 1 Elder, Mary Van Winkle Sur. ..... Derrick.
D. W. Henke's No. 1 J. M. Christian, center of 2.9-ac. tract, G. W. Hooper Sur. ..... Location.
D. M. Hester's No. 1 Crews, 209 ft. W and 166 ft. S of SE cor. of William W. Friars Sur. ..... Swabbed dry at 3,678 ft.
Inland Oil Co.'s No. 1 J. A. Knowles, 150 ft. from S line and 330 ft. from W line of 17-ac. lease, John Blair Sur. ..... Drlg. 1,180 ft.
Jackson and Bradstreet's No. 1 M. Young, center 2-ac. tract, J. R. Crosby Sur. ..... Drlg. 3,160 ft.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur..... S.D. 700 ft.
Landes et al's No. 1 M. B. Hughey, Blk. No. 118, Kilgore Townsite, Mary Van Winkle Sur. ..... Drlg. 2,932 ft.
W. T. Lee et al's No. 1 fee, 125 ft. from NW line and 95 ft. from NE line of Blk. No. 37, H. R. Hokit Sur. ..... Derrick.
Lucy Petroleum Co.'s No. 1 B. C. Christian, 330 ft. from W line and center of N and S lines of 8-ac. lease, G. W. Hooper Sur. ..... Drlg. 890 ft.
Magnolia Petroleum Co.'s No. 1 Zeigler, 330 ft. out of NW cor. of 50-ac. lease, B. N. Hampton Sur. ..... Derrick.
McBride's No. 1 P. Elder, 395 ft. ft. N and 330 ft. W of SE cor. of 26-ac. lease, John Wilkerson Sur. ..... Drlg. 1,250 ft.
McLemore et al's No. 1 Adkins, 330 ft. N and 150 ft. W of SW cor. of Gulf Lingley lease, D. Dainwood Sur. ..... Rig up.
Jim McMurray et al's No. 1 J. H. Alexander, center of E 2 acres of 50-ac. tract, D. Sanches Sur. ..... Derrick.
National Oil Co.'s No. 1 L. Martin, 330 ft. from N and W lines of 20-ac. lease, W. P. Chisum Sur. ..... Drlg. 2,870 ft.
Newman et al's No. 1 A. V. Bacle, 426 ft. S and 250 ft. W of NW cor. of Barnsdall's McGrede lease, G. W. Hooper Sur. ..... Location.
J. D. Patty, et al's No. 1 J. C. McCormick, 207 ft. SE at right angles to Gladewater-Tyler road and 540 ft. SW of Abernathy and Kirkpatrick's No. 1 Gregston, M. Dillard Sur. ..... T.D. 100 ft.
Tom C. Patten's No. 1 Geo. Walter, center of 1-ac. tract, and 396 ft. from W line of lease, Mary Van Winkle Sur. ..... Drlg. 3,200 ft.
E. A. Payne et al's No. 1 R. M. Woods, 20 ft. from S line and 51 ft. from W line of 2.13-ac. lease, H. R. Holit Sur. ..... Derrick.
Perry-Crews' No. 1 Clayborn, 246 ft. S along E line of C. G. Strong 50-ac. tract, I. Baty Sur. ..... Derrick.
Peterson and Merritt's No. 1 Hem, center of 1-ac. tract of SW cor. of Meridian's Lee lease, L. J. Rigsby Sur. ..... S.D. 2,943 ft.
Pilot Oil Co.'s No. 1 H. Smith, center of 2.67-ac. lease, William Robinson Sur. ..... Rig up.
L. G. Priest's No. 1 Oscar Robertson, 330 ft. from S line and 120 ft. from E line of 5-ac. tract, T. Grace Sur. ..... Derrick.
Pruitt and Standberry's No. 1 M. B. Hughey, Blk. No. 150, Kilgore Townsite, Mary Van Winkle Sur. ..... Derrick.
Reeves et al's No. 1 W. L. Hestland, center of five-eighths-acre tract, midway from Lampton Church and Sarson's No. 2 Hall, D. Sanches Sur. ..... Derrick.
C. B. Robinson et al's No. 1 L. Rodden, 330 ft. W and 232 ft. S of NW cor. of The Texas Company's Woods lease, M. Dillard Sur. ..... Waiting on cmt. to set; T.D. 1,608 ft.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line and 6.66-ac. lease, C. H. Alexander Sur. ..... Derrick.
Frank Russell's No. 1 M. Dickson, Blk. No. 184, Kilgore Townsite, Mary Van Winkle Sur. ..... Drlg. 280 ft.
Shell Pet. Corp.'s No. 1 S. C. Fishborn, 330 ft. from N and E lines of 100-ac. lease, F. W. Johnson Sur..... Location.
Shell Petroleum Corp.'s No. 1 M. J. Register, 370 ft. from N line and center of E and W lines of 50-ac. tract, D. Dainwood Sur. ..... Drlg. 3,435 ft.
Showers and Moncrief's No. 1 J. M. Christian, 177 ft. from N and S lines and 265 ft. from E and W lines of 4.33-ac. lease, G. W. Hooper Sur. ..... Derrick.
Silver Star Gas Co.'s No. 1 Knight and Tabor, center of one-half-acre tract, L. B. Outlaw Sur. ..... Waiting on cmt. to set 3,603 ft.
Silver Star Oil Co.'s No. 1 Thad Snoddy, 125 ft. from N line and 250 ft. from W line of W 3 acres of 4-ac. tract, W. H. Castleberry Sur. ..... Location.
V. C. Smith's No. 1 M. B. Hughey, center of Blk. No. 122, Mary Van Winkle Sur. ..... Rig up.
Victor C. Smith's No. 1 Knowles, center of Blk. 134, Mary Van Winkle Sur. ..... Derrick.
Solar Exploration's No. 1 J. Elder, 300 ft. NE of Solar's No. 1, Mary Van Winkle Sur. ..... Rig up.
Stanolind Oil & Gas Co. and Simms Oil Co.'s No. 1 Akin, 330 ft. from S and E lines of lease, W. H. Castleberry Sur. ..... Waiting on cmt. to set; T.D. 1,509 ft.
Stroube and Stroube's No. 1 M. B. Hughey, center of 5-ac. lease, L. B. Outlaw Sur. ..... Running csg. 3,585 ft.
Thompson's No. 1 Cole, E offset to Petroleum Finance's No. 2 Lacy, M. T. Cole Sur. ..... Drlg. 3,170 ft.
M. E. Trapp et al's No. 1 A. N. Neeley, center of 1.75-ac. tract out of Lion Oil & Ref. Co.'s J. R. Williams lease, P. McAnnally Sur. ..... Set csg.; T.D. 3,541 ft.
T. J. Tucker's No. 1 Mary Rufus, center of one-half-acre tract, Mary Van Winkle Sur. ..... Rig up.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ..... Rig up.
Waggoner and McCownell's No. 1 A. J. Green, 25 ft. from NW cor. of Blk. No. 81, M. Dillard Sur. ..... Drlg. 3,530 ft.
Westheimer and Doby's No. 1 J. T. Florence, 606.3 ft. from S line and 123 ft. from W line and 474 ft. from E line of lease, Mary Van Winkle Sur. ..... Rig up.
Wiseman et al's No. 1 C. Jones, center of 45-ac. tract, G. W. Hooper Sur. ..... Derrick.
H. E. Wrenn's No. 1 A. A. King, 150 ft. from S and E lines of 79-ac. lease, W. P. Chisum Sur. ..... Location.

HILL COUNTY

Sherman-Houseman's No. 1 J. F. Griffith, in Samuel Waddell Sur. ..... S.D. 3,256 ft.

HOPKINS COUNTY

E. L. Chapman's No. 1 J. D. Jumper, 175 ft. from N line, 285 ft. from W line of lease, Jas. Webb Sur.... S.D. 230 ft.
Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ..... S.D. 540 ft.

HOUSTON COUNTY

Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ..... Drlg. 2,260 ft.
C. T. McManus' No. 1 Haron, 300 ft. out of NE cor. of 327-ac. tract, J. P. Procella Sur. ..... Spudded and S.D. 37 ft.

HUNT COUNTY

Branson et al's No. 1 Gray ..... Location.
Russell et al's No. 1 Brooks and Quattlebaum ..... S.D. 1,455 ft.

KAUFMAN COUNTY

Standy Darnell et al's No. 1 Sally Pannill ..... T. D. 1,500 ft.

LAMAR COUNTY

G. W. Davy et al's No. 1 McGustion, 450 ft. from S line, 450 ft. from W line of farm and survey, Galet Wood Sur. ..... S.D. 2,880 ft.
Doyle and Jondeau's No. 1 Martin, 990 ft. from N line and 330 ft. from E line of tract, Joseph Deck Sur. ..... Rig up.
Doyle and Jondeau's No. 1 Horn, 226 ft. from S line and 608 ft. from E line of lease, R. P. Mayor Sur. ..... Drlg. 2,140 ft.

LEON COUNTY

Saizer Drlg. Co.'s No. 1 Dr. J. M. Blair, 1,010 ft. from N line, 1,986 ft. from W line, Sec. 19, Blk. E, Lucia Hibbard Sur. ..... Derrick on ground.

MORRIS COUNTY

Leonard's (Tucker-Fullwood) No. 1 P. M. Staggers, 450 ft. from N line and 150 ft. from E line of 65.5-ac. tract, J. D. Nelson Sur. ..... Drlg. 3,550 ft.

NACOGDOCHES COUNTY

Adams et al's No. 1 Fuller Brothers, located in a 269-ac. tract, Jose Flores Sur. ..... Location.
Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ..... S.D. 3,430 ft.
Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ..... S.D. 3,920 ft.
Scully & Harwell's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ..... S.D. 3,808 ft.
Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Horrera Sur. ..... S.D. 265 ft.
Creighton Drlg. Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Y. Barbo Sur. ..... S.D. 3,226 ft.

POLK COUNTY

Humble Oil & Refining Co.'s No. 2-A West Texas Lumber Co., 1,902 ft. S and 70 deg. W along property line from N cor. of survey, thence 100 ft. SW of right of way, M. Chavence Sur. ..... T.D. 877 ft.
Sunshine Oil Co.'s No. 1 Brawley, 150 ft. from S line and 250 ft. from E line of W 100 acres of lease, F. Johnson Sur. ..... Derrick.

RAINS COUNTY

C. H. Bayliss' No. 1 Ownby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ..... S.D. 4,036 ft.
Greer et al's No. 1 Roy Harper, 150 ft. from S line and E line of tract, 4 miles N of Ginger, David Rose Sur. ..... Waiting on cmt. to set 320 ft.

RED RIVER COUNTY

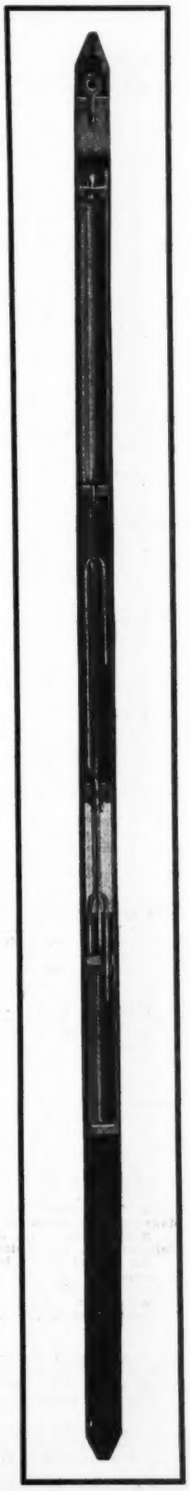
Gibbs et al's No. 1 Mace (old well being drilled deeper), 1,200 varas from S line, 1,500 varas from E line of survey, Wm. Cullam Sur. ..... S.D. 3,520 ft.

These operators would have saved many dollars by guarding against vertical deviation

1 **Example No. 1**—This drilling operation was surrounded by producing wells, but at the expected depth, that is, approximately 5,000 feet, the producing sand was not found. A survey was made which showed the well from 1,000 feet down to be badly off the vertical and having a maximum angle of 19°. The well was plugged back to less than 800 feet and redrilled. This was extremely expensive, as over 4,000 feet of hole cased with 10″ casing was lost and none of the casing salvaged. When the well was started again, a SYFO CLINOGRAPH of the Go-Devil type was used constantly and the well kept within a small degree of vertical. At the expected depth, the sand was found and a good well resulted. This case shows the difference between a dry hole and a producing well, through not checking verticality, including the loss of 4,000 feet of 10″ casing.

2 **Example No. 2**—A well drilled in the Texas field was surveyed with a SYFO CLINOGRAPH and the results found were as follows: at 500 feet, straight —at 1,000 feet, straight—at 1,325 feet, 5° off vertical—at 2,546 feet, 11° off vertical. After 48 hours of reaming, no improvement was noticed so the well was cemented back and redrilled. This resulted in the loss of 1,500 feet of hole and the labor and material consumed in forty-eight hours of reaming. The loss more than took away any profit the drilling contractor hoped to make on this well, as contracts in the East Texas field are rather low priced and if a contractor has any loss at all, it more than eats up his anticipated profit.

3 **Example No. 3**—A well known producing company in the Humble field made only a 200 barrel well when surrounded by wells good for from 800 to 1,000 barrels. A SYFO CLINOGRAPH survey was made and the well was found to be about 21° off the vertical at about 4,500 feet. As the well was completed, no attempt was made to straighten it up. The results of these findings, however, caused the owner to adopt SYFO as standard for use in drilling all future wells. It is a question whether it will pay to keep this well open when the time comes to place it on the pumps because of excessive rod wear and difficulties of swabbing due to its wide deviation of direction.



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SYFO CLINOGRAPH

"The Ink Bottle"

Write for Descriptive Literature

SPERRY-SUN WELL SURVEYING COMPANY
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Dallas, Texas: 1501 Caruth Street
Tulsa, Oklahoma: 402 Petroleum Building
Houston, Texas: 1417 Esperson Building
Los Angeles, Calif.: 415 Petroleum Securities Bldg.
Calgary, Alberta, Can.: Room 1, Central Block

Hoffman and Henson's No. 1 H. H. Lennox, 2,790 ft. W and 300 ft. S of most easterly NE cor. of survey, J. E. Edmondson Sur. ..... S.D. 60 ft.
Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ..... S.D. 2,530 ft.
L. G. Priest's No. 1 J. M. Stiles, 900 varas S and 500 varas E most northerly NE cor. of Jones Bankston Sur. in the Levi Dean Sur. ..... S.D. 1,770 ft.

ROCKWALL COUNTY

Bucanner Oil Co.'s No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ..... Set 10-in. csg. 120 ft.

RUSK COUNTY

Butler and Calhoun's No. 1 C. C. Lowe, 225 ft. from N line and 200 ft. from E line of 85-ac. lease, W. O. Tutt Sur. ..... Derrick.
Byrd-Frost's No. 1 Buckner, J. E. Peyton Sur. ..... Drlg. 3,462 ft.
Cordova Union Oil & Gas Co.'s No. 1 C. O. Christian, 330 ft. from S and E lines of 40-ac. lease, W. A. Elliott Sur. ..... Derrick.
C. A. Everts' No. 1 Cole, 210 ft. from N line and 330 ft. from E line of 50-ac. lease, D. Shaw Sur. ..... Drlg. 2,927 ft.
R. W. Fair and C. L. Thompson's No. 1 W. E. Wylie, 330 ft. from S line and 330 ft. from W line of 27-ac. lease, Juan Ximenes Sur. ..... Rig up.
E. P. Florey's No. 1 E. B. Alford, center of 3-ac. lease, Isaac Parker Sur. ..... Derrick.
E. E. Fogelson's No. 1 D. Wadley, center of 15-ac. tract, D. Clark Sur. ..... Derrick.
P. T. Fullwood's No. 1 W. N. Brightwell, 275 ft. E of Horse Shoe Syndicate's No. 1 Brightwell, R. E. Winn Sur. ..... S.D. 3,622 ft.
Great Eastern Oil Co.'s No. 1 C. O. Christian, 150 ft. from N line and 230 ft. from E line of lease, J. S. Whiteman Sur. ..... Reset 10-in. csg.; T.D. 131 ft.
Gulf Production Co.'s No. 1 A. H. Rayford, 301 ft. from N line and 330 ft. from E line of 59.87-ac. lease, F. Cordova Sur. ..... Drlg. 1,375 ft.
Hale and Hatchfield's No. 1 C. J. Goforth, 625 ft. from S line and 450 ft. from W line of 13.4-ac. tract, M. J. Pru Sur. ..... Rig up and S.D.
Harris and Russell's No. 1 T. W. Harris, 330 ft. from S line and 660 ft. from W line of most southerly SW cor. of 160-ac. tract, 3 miles SW of Henderson, W. G. Davis Sur. ..... Derrick.
Hathaway et al's No. 1 Gray, J. M. McLain Sur. ..... S.D. 3,365 ft.
Heiden-Rodgerson et al's No. 1 Barton and Birdwell, N offset to Reisinger et al's No. 1 Barton, W. G. Tutt Sur. ..... S.D. 100 ft.
Holland et al's No. 1 S. E. Brox, 330 ft. from N line and 250 ft. from W line of 20-ac. lease, Thomas Grey Sur. ..... Derrick.
Howell's No. 1 Irion and Motley, 200 ft. from N line, 1,270 ft. from W line of survey, J. Lindley Sur. ..... S.D. 2,920 ft.
Hudspeth's No. 1 E. B. Alford, center of Lot No. 35, T. J. Moore Sur. ..... Derrick.
Humble Oil & Refining Co.'s No. 1 W. D. Peterson, 330 ft. from N and W lines of 100-ac. lease and tract, J. Lewis Sur. ..... Top sand 3,547 ft.; T.D. 3,648 ft.
T. F. Hunter's No. 1 J. Johnson, 330 ft. from E line and 171 ft. from N line of 13-ac. lease, H. B. Dance Sur. ..... T.D. 2,990 ft.
LaSalle-Davenport and Bledsoe's No. 1 Church, 175 ft. S and 175 ft. E of SE cor. of Sun-Schuler joint lease, J. B. DeCadena Sur. ..... Rig up.
McPhail and Kimbrough's No. 1 E. A. Thrash, 150 ft. from N and W line of 4-ac. lease, Juan Ximenes Sur. ..... Spudded.
Moss and Urschel's No. 1 H. L. Griffin, 200 ft. from N line and 150 ft. from W line of 20-ac. lease, Juan Ximenes Sur. ..... T.D. 3,697 ft.; to deepen.
Mid-Kansas Oil & Gas Co.'s No. 1 Jim Lunsford, 460 ft. from S line and 330 ft. from W line of 66.6-ac. lease, J. B. DeCadena Sur. ..... Spudded.
Mid-Kansas Oil & Gas Co.'s No. 1 George W. Moore, 425 ft. from N line and 330 ft. from S line and 1,105 ft. from E line of 85-ac. tract, W. J. Roan Sur. ..... Rig up.
Mid-Kansas Oil & Gas Co.'s No. 1 H. C. Burton, 1,375 ft. from S line and 330 ft. from E line of 59.5-ac. lease, W. D. Porter Sur. ..... Run liner; T.D. 3,671 ft.
Mrs. J. A. McIntyre's No. 1 G. A. Dickerson, 330 ft. from N and W lines of 55-ac. lease, T. J. Martin Sur. ..... Rig up.
Geo. L. Pace's No. 1 E. B. Alford, center of 5-ac. lease, T. J. Moore Sur. ..... Waiting on cmt. to set 3,595 ft.
Pace Petroleum Co.'s No. 1 Wells, W offset to East Texas, W. P. Chisum Sur. ..... Derrick.
Pansy Oil Co.'s No. 1 E. B. Alford, center of Blk. No. 50, T. J. Moore Sur. ..... Rig up.
Rajo Oil Corp.'s No. 1 L&G.N.R.R., approximately half-way between Gulf's Nos. 2 and 5-A Laird, I. Ruddle Sur. ..... Waiting on cmt. to set 3,588 ft.
Ross Seward's No. 1 Burton, J. J. Y'Barbo Sur. ..... S.D. 3,077 ft.
Sabins et al's No. 1 J. R. Irion, 330 ft. from S and E line of 2-ac. tract, John Womack Sur. ..... Rig up.
R. E. L. Silvey's No. 1 P. G. Warren, 155 ft. from S line and 96 ft. from E line of 44-ac. tract, John Womack Sur. ..... Derrick.
Jay Simmon's No. 1 D. C. Joyner, 3,050 ft. from S line and 200 ft. from W line of 74.11-ac. tract, F. Cordova Sur. ..... Derrick.
Sinclair Oil & Gas Co.'s No. 1 J. W. Ashby, 300 ft. from S and W lines of 54.77-ac. lease, William Clark Sur. ..... Drlg. 3,150 ft.
Sinclair Oil & Gas Co.'s No. 1 D. Ledbetter, 330 ft. from N and E lines of 191-ac. tract, T. M. White Sur. ..... Moving in material.
Spansco Oil Co.'s No. 1 J. R. Alford, center of Lot No. 33, T. J. Moore Sur. ..... Rig up.
J. E. Stone Lumber Co. and Imperator Oil Co.'s No. 1 School Lot, center of School Lot, J. B. Cadena Sur. ..... Rig up.
Weaver-Crim Corp.'s No. 1 M. E. Peterson, 330 ft. from S line and center of E and W line of lease, W. P. Chisum Sur. ..... Drlg. 2,757 ft.
Weaver-Crim's No. 1 F. Bean, 175 ft. from NW line and 212 ft. from S line of 16-ac. lease, Mary Cogswell Sur. ..... Derrick.
G. C. Wood's No. 1 J. B. Irwin, 154 ft. from N line and 103 ft. from W line of 35.41-ac. lease, J. Lindley Sur. ..... T.D. 3,820 ft.; waiting on cmt. to set.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ..... Rigging up.
Paulett et al's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... S.D. 1,465 ft.

SAN AUGUSTINE COUNTY

A. H. Jones and Tennant's No. 1 A. P. Davis ..... Drlg. 2,320 ft.
Smith and Baker's No. 1 Pickering Lbr. Co., 6 miles N of San Augustine, E. Quick Sur. ..... Derrick.

SMITH COUNTY

Acme Oil Co.'s No. 1 Horton, 330 ft. from N and W lines of tract, Mar Sewell Sur. ..... Drlg. 2,100 ft.
British-American's No. 1 M. L. Thompson, 330 ft. from N and W lines of 64.52-ac. lease, Isaac Moore Sur. ..... Derrick.
Deaner and Reynolds' No. 1 J. B. Wilson, 330 ft. from S and W lines of 20 ac. lease, James Jordan Sur. ..... Moving in rig.
Hazmussen et al's No. 1 S. S. Cooke, 723 ft. E and 554 ft. S of SW cor. of Mayfield 99-ac. tract, Juan Vargus Sur. ..... Drlg. 350 ft.
Hamp Florence's No. 1 S. S. Cooke, 150 ft. from S and E lines of 26-ac. lease, Juan Vargus Sur. ..... Drlg. 3,434 ft.
Hawkins and Sutton's No. 1 Church, 345 ft. from S line and center of E and W lines of 8.73-ac. lease, James Jordan Sur. ..... Preparing to drill plug.
Iowan-Payne Oil Co.'s No. 1 J. B. Wilson, 330 ft. from S and E line of 25-ac. lease, Juan Vargus Sur. ..... Drlg. plug; T.D. 3,741 ft.
J. E. Lucas' No. 1 Henry Jackson, 150 ft. from N and E lines of 25-ac. tract, James Jordan Sur. ..... Location.
Lucas & Hobbe's No. 1 L. S. Sartin, 214 ft. from S line and 330 ft. from E line of 10-ac. lease and 76-ac. tract, James Jordan Sur. ..... Moving in rig.
Nash and Bloxom's No. 1 Frank Cole, 330 ft. from S and E lines of 67-ac. tract ..... Location.
Weaver-Crim Corp.'s No. 1 Stone and Lee, 330 ft. from E line and 530 ft. S of Sessions' No. 1 Attaway, D. Shaw Sur. ..... Bldg. derrick.
Zion Oil Co.'s No. 1 Sartin, 665 ft. N and 328 ft. W of SW cor. of Mayfield 94-ac. tract, James Jordan Sur. ..... Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ..... Fishing 3,860 ft.
Joiner et al's No. 1 Clayton Brown, 1,300 ft. from E and 400 ft. from most northerly S line of V. Evans Sur. ..... S.D. 2,250 ft.

UPSHUR COUNTY

L. G. Bradstreet et al's No. 1 O. M. Victory, 330 ft. from N and E lines of 10-ac. lease, E. A. J. Evans Sur. ..... Location.
E. & D. Oil Co.'s No. 1 Thomas Wells, 443 ft. W and 250 ft. S of SW cor. of Humble's C. T. Shelton lease, G. W. Hooper Sur. ..... Waiting on cmt. to set 3,695 ft.
Eslick et al's No. 1 H. F. Whitehurst, 330 ft. out of SW cor. of 5.80 acres of W 40 acres of Whitehurst 100-ac. tract ..... Estimated 8,000 to 10,000-bbl. well T.D. 3,628 ft.
Pat Hudson et al's No. 1 D. F. Smith, 330 ft. out of SE cor. of W 100 acres of the N 200 acres of the 272-ac. lease, 3 miles E and 1¼ miles N of Cranfill & Reynolds' No. 1 Rash, John Denson Sur. ..... Derrick.
J. C. McFarland et al's No. 1 Willie Starr, center of S 40 acres of Starr 96-ac. tract, Charles Cooper Sur. ..... Drlg. 2,640 ft.
Saturn Oil Co.'s No. 1 W. F. Smith, 330 ft. from E line and center of N and S lines of S 25 acres of W 50 acres of 100-ac. tract, J. Pineda Sur. ..... Testing 3,716 ft.
L. E. Trout et al's No. 1 O. M. Victory, 330 ft. from S and E lines of 60-ac. lease, E. A. J. Evans Sur. ..... Derrick.
Wadley and Evans' No. 1 Oliver, 330 ft. out of NE cor. of the W. half of survey on a 160-ac. tract, S. Saunders Sur. ..... Drlg. 2,985 ft.
Webster's No. 1 R. H. McClelland, 1,956 ft. E and 385 ft. S of NW cor. of 751-ac. tract, M. P. Del Torres Sur. ..... Derrick.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. DeCadena Sur. ..... S.D. 2,104 ft.
Humble Oil & Refining Co.'s No. 1 J. F. McPherson, 308 ft. E of W line and 200 ft. N of S line of lease, William Daniel Sur. ..... Cmt. setting 2,959 ft.
Kelly O. & G. Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... S.D. 2,300 ft.
Pure Oil Co.'s No. 1 R. Clark, 910 ft. S of N line and 704 ft. W of E line of lease, Phillip Mason Sur. ..... Location.
Pure Oil Co.'s No. 2 A. R. Humphreys, 200 ft. S of N line and 225 ft. E of W line of lease, A. McPhail Sur. ..... Swabbing 2,989 ft.
Pure Oil Co.'s No. 2 P. E. Neill, 329 ft. N of S line and 59 ft. E of W line of lease, John Walling Sur. ..... Location.
Pure Oil Co.'s No. 2 Mrs. C. White, 250 ft. E of W line, 250 ft. S of N line, John Walling Sur. ..... Derrick.
Pure Oil Co.'s No. 3, 225 ft. S of N line and 225 ft. W of E line, J. Stephenson Sur. ..... Preparing to swab in.
Pure Oil Co.'s No. 3 J. H. Leonard, 1,230 ft. from N line and 200 ft. from W of E line of lease, Mund Grose Sur. ..... Running tubing 2,947 ft.
Pure Oil Co.'s No. 4 E. Cade, 200 ft. N of S line and 225 ft. E of W line of lease, A. McPhail Sur. ..... Location.
Pure Oil Co.'s No. 4 L. A. Smith, 635 ft. N of S line and 683 ft. E of W line of lease, John Walling Sur. ..... Location.
Pure Oil Co.'s No. 7 N. E. Clark, 600 ft. S of N line and 225 ft. E of W line of lease in J. Prado Sur. ..... Drlg. 800 ft.
Pure Oil Co.'s No. 9 A. R. Tunnell, 644 ft. N of S line and 250 ft. W of E line of lease, John Walling Sur. ..... Derrick.
Van Oil Association's No 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... S.D. 2,850 ft.

WOOD COUNTY

Talko Oil Co.'s No. 1 G. T. Ross, B. L. Smith Sur. ..... S.D. 2,340 ft.
Wood County Dev. Co.'s No. 1 Davis, approximately 180 ft. from S line of 160-ac. tract and 2½ miles S of Kantes in Sarah McDonald Sur. ..... Moving in rig.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 22)

Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur. ..... S.D. 2,600 ft.; show oil 2,525-40 ft.
Operators Royalty & Prod. Co.'s No. 2 Arnold, 330 ft. from S and W, Sec. 149, Blk. 3, I.&G.N. Sur. ..... Rig.
Parton & Holt's No. 2 Morse, 330 ft. from W, 250 ft. from N, W½ SW, Sec. 5, Blk. 26, H.&G.N. Sur. ..... Location.
Pulse-Shell Pet. Corp.'s No. 1 Wright, 330 ft. from S and W of Sec. 13, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,739 ft.
Prairie Oil & Gas Co.'s No. 1 Pope, 330 ft. from N and E, Sec. 172, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,161 ft.
Saunders et al's No. 2 Sullivan, 822 ft. from W. and 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Will plug back to 3,275 ft. and shoot.
Skelly Oil Co.'s No. 25 Schaffer, 330 ft. from S and E, Sec. 189, Blk. 3, I.&G.N. Sur. ..... T.P. 3,100-40 ft; 1,400 ft. oil in hole; T.D. 3,250 ft.
Skelly Oil Co.'s No. 26 Schaffer, 330 ft. from S and W, Sec. 172, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,090 ft.
Skelly Oil Co.'s No. 28 H. Schaffer, 440 ft. from S line and 440 ft. from E line of NE Sec. 189, I.&G.N. Sur., Blk. 3 ..... Drlg. 1,150 ft.
Skelly Oil Co.'s No. 29 Schaffer, 440 ft. from S and W, Sec. 171, Blk. 3, I.&G.N. Sur. ..... Location.
Stanolind Oil & Gas Co.'s No. 2 Waggoner, 330 ft. from N and W, Sec. 173, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,557 ft.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. ..... Location.
Travis' No. 2 Back, 330 ft. from S, 2,300 ft. from E, Sec. 44, Blk. 25, H.&G.N. Sur. ..... Location.
Warner Oil Co.'s No. 2 Chapman, 382 ft. N, 330 ft. W of E 20 ac. of N½ NW, Sec. 69, Blk. 25, H.&G.N. ..... Location.

HUTCHINSON COUNTY

...so's No. 1 Moore, 330 ft. from S and 330 ft. from E, in 80 ac. in NW, Sec. 21, Blk. M-21, T.C.R.R. Sur.....S.D. 2,320 ft.
...mbination O. & G. Co. and Alspaugh's No. 1 Johnson, 330 ft. from S line, 330 ft. from E line of NW SW, Sec. 4, Blk. Y, A.&B. Sur. .....Drlg. 1,250 ft.
...nciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. .....Spudded and S.D.
...al O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. ....S.D. 450 ft.
...ber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. .....S.D. 3,125 ft.; I.P. 10 bbls. per hr. and 500,000 ft. gas.
...ner Drlg. Co.'s No. 1-D Johnson, 330 ft. from N and E, Sec. 6, Blk. 1, B.&B. Sur. .....Location.
...tes and Marrow's No. 1 W. A. Starnes, C SE SW SE Sec. 24, M-23 T.C.R.R. Sur. .....Drlg. 810 ft.
...harls Oil Co.'s No. 5 Smith, 660 ft. from N and W, SW, Sec. 14, Blk. Y, M.&C. Sur. .....Spudded.
...mms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, L.&G.N. Sur. .....Rig.

LIPSCOMB COUNTY

...kla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. .....T.D. 5,003 ft.

MOORE COUNTY

...ogie Oil Co.'s No. 1 Greenwald, 330 ft. from N and W, Sec. 277, Blk. 44, H.&T.C. Sur. .....Spudded and S.D.
...na O. & G. Co.'s No. 1 Robertson et al, 330 ft. from S and E, Sec. 165, Blk. 3-T, T.&N.O. Sur. .....Location.
...nterstate's No. 1 Nield, C NE, Sec. 15, Blk. 44, H.&T. C. Sur. .....Rig up.
...agnolia Pet. Co.'s No. 1 Nield, 330 ft. from S and E of N½, Sec. 361, Blk. 44, H.&T.C. Sur. .....Drlg. 3,200 ft.
...ollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. .....Rig on ground.
...nray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. .....Rig on ground.
...nset Oil Co.'s No. 1 R. O. Brumley, 330 ft. from N line and 330 ft. from W line of SW, Sec. 360, H.&T.C. Sur. .....Set csg. 2,805 ft.

MOTLEY COUNTY

...atador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. .....S.D. 530 ft.

OLDHAM COUNTY

...malgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. .....S.D. 400 ft.
...hambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. .....S.D. 3,555 ft.

PARMER COUNTY

...agnolia Pet. Co.'s No. 1 Wilson, 330 ft. from N and W, SE Sec. 73, H. Kelly Sur. .....Drlg. 4,200 ft.

ROBERTS COUNTY

...hicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. .....T.D. 3,990 ft.
...ravis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. .....S.D. 2,690 ft.

WHEELER COUNTY

...vore & Robinson's No. 1 Sitter, 2,310 ft. from S and E of E½ of Sec. 33, Blk. 24, H.G.N. Sur. .....S.D. 2,193 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 22)

GARZA COUNTY

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,680 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) .....T.D. 3,320 ft.; to run 6⅝-in. csg.

HOWARD COUNTY

American-Maracaibo's No. 5-A Settles, 1,896 ft. from N, 1,884 ft. from W, Sec. 6, Blk. 32, T.&P. Sur. .....Bldg. rig.
Chalk's No. 1 fee, 330 ft. from S and E Sec. 96, Blk. 29, W.&N.W. Sur. .....Drlg. 1,412 ft.
P. H. E. Oil Co.'s No. 1 Denman, 330 ft. from N, 2,310 ft. from E of Sec. 14, Blk. 30, T.&P. Sur. .....Rigging up.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W, Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur..Spudded and S.D.
Wallace et al's No. 1 Bell, 1,960 ft. from N, 2,640 ft. from W, Sec. 12, Blk. 30-1s, T.&P. Sur. .....Rigging up cable tools.

IRION COUNTY

Apollo Oil Co.'s No. 4 Nutt, 504 ft. from N and 1,562 ft. from W of Subd. No. 6, Gonzales County School Land .....Cellar.
Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W, Sec. 3,081, Blk. 28, H.&T.C. Sur. .....Drlg. 6,867 ft.
Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. .....Rig burned; T.D. 7,425 ft.

JONES COUNTY

Johnson's No. 1 Huddleston, 165 ft. from S and W of N half of N half of Sec. 39, Blk. 18, T.&P. Sur.....Rig.
Grove & Shield's No. 1 Toombs, 1,140 ft. from N and 330 ft. from E Sec. 25, Blk. 19, T.&P. Sur. .....Location.
Young et al's No. 1 Harrell, 150 ft. from S and E of N half of Sec. 8, O.A.L. Sur. .....Location.
Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 42.4-acre tract in G. Martinez Sur.....S.D. 1,005 ft.; temp. abnd.
Transcontinental Prod. Co.'s No. 1 Rust, 5,300 ft. N and 995 ft. W of SE cor. J. J. Hughes Sur. 556 .....Cellar.

LOVING COUNTY

Wm. Little's No. 1 Hugo Freels, 1,923 ft. from NE lines and 410 ft. from NW lines of Sec. 92, W.&N.W. Sur., Blk. 1 .....Drlg. 2,425 ft.
Martin's No. 1 Freels, 3,514 ft. from NE and 412 ft. from NW of Sec. 92, Blk. 1, W.&N.W. Sur. .....Location.
Covey et al's No. 1 Wheat, 2,310 ft. from SW, 330 ft. from SE, Sec. 3, Blk. 2, W.&N.W. Sur. .....Bldg. rig.
Hippenaner Drlg. Co.'s No. 1 Allen, 465 ft. from NE and SE, Sec. 4, Blk. 2, W.&N.W. Sur. .....S.D. 200 ft.
Irvin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S, Sec. 46, Blk. 53, T.&P. Sur. .....S.D. 2,500 ft.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW, Sec. 79, Blk. 33, H.&T.C. Sur.....Drlg. 3,490 ft.
Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W, Sec. 6, Blk. 56, Twp. 1, T.&P. Sur...Drlg. 565 ft. in new hole.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur.....S.D. 3,385 ft.
Miller et al's No. 1 Ferguson, 990 ft. from N and E of Sec. 44, Blk. 29 .....Spudded.
Stein & Bowers' No. 1 Jim Wheat, 1,650 ft. from NW and 1,650 ft. from NE lines of Sec. 83, W.&N.W. Sur., Blk. 1 .....Location.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW, Sec. 66, Blk. 1, W.&N.W. Sur. .....S.D. 4,380 ft.; to run csg.

MENARD COUNTY

Priest's No. 1 Serrel, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. .....S.D. 2,860 ft.

PECOS COUNTY

Anderson's No. 1 Lee Fever, 330 ft. from N and W of Sec. 78, Blk. 8, H.&G.N. Sur. .....S. D. 2,037 ft.
Black et al's No. 1 Pecos Valley, 1,037 ft. from SE, 433 ft. from SW, Sec. 36, Blk. 3, H.&T.C. Sur. .....S.D. 925 ft.
Cardinal Oil Co.'s No. 1 J. H. Tippett ("J"), 1,980 ft. from the S line and 990 ft. from the W line of Sec. 2, D. F. Robertson Sur. .....S.D. 675 ft.; plugged back to 600 ft.
Corvette Oil Corp.'s No. 8 H. Monroe, 1,040 ft. from E line and 150 ft. from N line of Sec. 39, G.C.&S.F. Sur., Blk. 194 .....Location.
Culberson Bros.' No. 4 Tippett, 150 ft. from N and 1,335 ft. from W of SE Sec. 40, Blk. 194, G.C.&S.F. Sur. ...Location.
Hampton et al's No. 1 Byrne, 1,980 ft. from NW and 1,500 ft. from NE Sec. 54, Blk. 10, H.&G.N. Sur. ....Drlg. 920 ft.
Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur.....S.D. 1,454 ft.

PRESIDIO COUNTY

Sadler et al's No. 1 Bledsoe, 2,640 ft. from N and W Sec. 15, Blk. 354, G.C.&S.F. Sur. .....Rig.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,370 ft. from S and 1,000 ft. from E, Sec. 12, Blk. 2 .....Drlg. 6,006 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W, Sec. 58, Cassel's Sur. .....S.D. 75 ft.
F. McDorman et al's No. 1 Ray Roberts et al, 2,310 ft. from S and E lines of Sec. 22, Blk. 59, P.S.L. Sur.....S.D. 105 ft.
James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 72 .....Drlg. 3,415 ft.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur....S.D. 5,044 ft.

RUNNELS COUNTY

Blue Bonnett Oil Co.'s No. 1 McMillan, 1,368 ft. from N and 660 ft. from W Sec. 22, N. Travis Sur. .....Material.
Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 .....S.O. 3,427-20 ft.; S.D. 3,600 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C, Sec. 29, Blk. M, G.H.&S.A. Sur. .....S.D. 5,165 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,302 ft. from E of Sec. 77, Blk. LL, T. C. Sur. .....S.D. 5,580 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. .....S.D. 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. .....S.D. 5,050 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. .....Spudded and S.D.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. .....Drlg. 4,200 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M-K-T Sur. .....S.D. 2,269 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. .....S. D. 3,150 ft.; moved off tools.
Miller Bros.' No. 1 Allison & Burke, C NW, Sec. 10, Blk. 176, T.&P. Sur. .....S.D. 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F. Sur..S.D. 6,120 ft.
Jones et al's No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. .....S.D. 2,545 ft.
Sides et al's No. 1 Phelps, 2,167 ft. from N and 2,482 ft. from W, Sec. 5, G. W. Hurley Sur. .....S.D. 1,000 ft.

TOM GREEN COUNTY

Andrews' No. 1 Pugh, 250 ft. from N and 5,184 ft. from E, James Eldridge Sur. No. 73 .....S.D. 453 ft.
Belding & Dutton's No. 1 Norsworthy, 1,640 ft. from S and 587 ft. from E of John McNeese Sur. .....S.D. 760 ft.; S.O. and gas 736 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur....S.D. 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 .....S.D. 200 ft.

UPTON COUNTY

Farley et al's No. 1-B Lone, 2,310 ft. from N and E, Sec. 36, Blk. 1, M.K.&T. Sur. .....Rigging up.

VAL VERDE COUNTY

Couch et al's No. 1 J. P. Yoas, 1,300 ft. from the N line and E line of Sec. 31, Blk. 1, I.&G.N. Sur.....S.D. 220 ft.
Independent Operators' No. 1 Whitehead, SE SE, Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. .....S.D. 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,210 ft. .....S.D. 6,780 ft.

WARD COUNTY

Abell Bros.' No. 1 Sloan, 330 ft. from NW and NE, Sec. 24, Blk. 5, H.&T.C. Sur. .....T.D. 2,430 ft.
Abell Bros. et al's No. 1 Smith, 330 ft. from NE and NW, Sec. 4, Blk. 34, H.&T.C. Sur. .....Moving in material.
Bradford & Bentley's No. 1 B. Carson, 1,650 ft. from the NE line and 990 ft. from the SE line of Sec. 26, H.&T.C. Sur., Blk. 5 .....National machine.
Buck Sturm et al's No. 2 R. H. Gill, 2,310 ft. from SW line and 330 ft. from SE line, Sec. 25, Blk. B-29, P.S.L. Sur. .....Swabbed 47 bbls. oil after shot; T.D. 2,485 ft.
Eppenauer's No. 1 Purcell, 365 ft. from SW and 1,650 ft. from SE of Sec. 17, Blk. 34, H.&T.C. Sur.....S.D. 2,740 ft.; estm. 25-bbl. well.
Eppenauer Drlg. Co.'s No. 1 Townsend-Moore, 990 ft. from SE and 330 ft. from SW Sec. 17, Blk. 34, H.&T.C. Sur. .....Spudded and S.D.
H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW, Sec. 12, Blk. 5, H.&T.C. Sur. .....Drlg. 1,830 ft.
Gulf Prod. Co.'s No. 10 Hutchings, 330 ft. from N and W of 5,370 acres, Sec. 5, Blk. F, G.M.M.B.&A. Sur. Drlg. 2,485 ft.
Gulf Prod. Co.'s No. 21 O'Brien, 2,557 ft. from N, 330 ft. from E of Sec. 16, Blk. F .....Rigging up.
Massie et al's No. 1 Stewart, 330 ft. from SW and SE Sec. 12, Blk. 34, H.&T.C. Sur. .....Location.
Moran & Burkhart's No. 2 J. T. Sweatt et al, 3,810 ft. from SW, Sec. 1, J. Howe Sur. .....S.D. 821 ft.
Moran & Miles' No. 1 Boogher, 3,603 feet from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. .....Drlg. 1,920 ft.
R. F. Owen's No. 1 Lee, 1,344 ft. from NW and 4,532 ft. from SW Sec. 1, J. Howe Sur. .....Drlg. 735 ft.
Plains Prod. Co. and Simms Oil Co.'s No. 1 Benton Land Co., 440 ft. from the SE and 440 ft. from SW lines of Sec. 26, W.&N.W.R.R. Sur., Blk. 1 .....Drlg. 315 ft.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. .....S.D. 3,602 ft.
Richardson et al's No. 7 O'Brien, 1,900 ft. from N and 330 ft. from W Sec. 5, Blk. F .....Drlg. 920 ft.
Richardson et al's No. 8 O'Brien et al, 1,372 ft. from N and 330 ft. from W of Sec. 5, Blk. F, G.M.M.B.&A. Sur. .....National machine.
Rixford et al's No. 1 Green, 330 ft. from NW and SW Sec. 4, Blk. 34, H.&T.C. Sur. .....S.D. 90 ft.
Sudderth & Carey's No. 1 J. H. Boogher et al, 150 ft. from SW and SE lines of Lot 24, Sec. 11, Blk. 5, H.&T.C. Sur. .....S.D. 290 ft.
Stanolind Oil & Gas Co.'s No. 1 Cannon, 3,300 ft. from SE and 1,649 ft. from NE, Sec. 29, Blk. B-29.....Drlg. 2,475 ft.
T. P. Coal & Oil Co.'s No. 2 James, 330 ft. from NW and NE Sec. 5, Blk. 34 .....Material.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. .....S.D. 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor., Sec. 2, Blk. B-5 .....S.D. 4,640 ft.
Sid Richardson's No. 1 S. M. Halley, 330 ft. from the S line and 1,650 ft. from the E line, Sec. 25, School Blk. B-12 .....Est. making 1 bbl. oil per hour; T.D. 2,958 ft.

NEXT WEEK!

On next Thursday will be published the *"Annual Refinery Number"* of The Oil and Gas Journal, which is virtually a text book on refining practices and methods.

As a regular part of this issue, will appear a complete survey of the refineries in the United States and Canada, showing the location of plant, capacity, type of equipment, officers, and key-men. This is the only source from which this information is available.

Despite the fact that additional copies are printed, we have never been able to meet the demand on us for copies of this issue. So, if you are not a subscriber and want to be sure of receiving it, we suggest that you enter your subscription on the coupon below and mail it to us.

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3-24-32

Brief Items for Petroleum Refiners

NEW MENTONE PLANT TO START OPERATING SOON

The new refinery of the Mentone Oil & Refining Co., located at Arno in Reeves County, Texas, will start operating before the end of the month. The Mentone company was newly organized to build and operate the refinery with headquarters at Mentone, Tex. It is owned by H. C. Chaddick and E. T. Barker, Jr., who expect to incorporate the company later. Mr. Chaddock will have charge of the refinery operation.

The plant, which will have a capacity of 1,000 bbls. daily, will operate with a Loving County crude oil. With a pipe still distillation the owners expect to secure 38 per cent gasoline, 12½ per cent kerosene and 15 per cent gas oil as overhead products. Tractor distillates for local consumption will also be refined.

ITALY ASKS ALCOHOL BE BLENDED WITH GASOLINE

Italy hopes to increase alcohol consumption by mixing it with gasoline according to the Department of Commerce.

A recent ministerial decree provides that every importer of gasoline must secure from a local producer or importer of alcohol 428 liters (116 gallons) of water-free spirits for each hundred quintals (100 quintals of gasoline is equivalent to 3,170 gallons) and must mix these so that a certain portion of their finished products to be offered to the public will comprise 20 per cent alcohol and 80 per cent benzine.

The way this decree, which merely motivates a royal decree published some time ago, will really work out is that for every 12,000 liters (100 quintals) of gasoline imported 428 liters of alcohol will have to be utilized. This alcohol, to arrive at the 20-80 mixture, will be employed in the dilution of but 1,712 liters of benzine. In other words, of the 12,000 liters of benzine imports, 10,288 (or about 85 per cent) will eventually be sold free of alcohol.

SEABOARD PREPARES TO BUILD VANCOUVER PLANT

The Seaboard Oil & Refining Co., Ltd., is preparing a site at North Vancouver, British Columbia, for the construction of a refinery. The company expects to build the refinery during the summer. Arrangements have been completed for all the labor that will be needed in building the plant.

The Seaboard company has been planning the construction of a refinery at North Vancouver for some time. The distillation equipment, which will be built and installed by the Southwestern Engineering Co., will have a capacity of 3,000 bbls. daily.

The company has headquarters at 110 Water Street, Vancouver, British Columbia. D. B. Boyd is president of the company, C. W. Durbrow and Edwin R. Sheldon vice presidents, and E. Robertson secretary and treasurer. Frank Milliff has been appointed superintendent of the refinery.

FRENCH REFINERIES UNDERWAY

NEW YORK, Mar. 19.—Senator Henri Roy, recently elected president of the administrative council of the Office National des Combustibles Liquides, French government petroleum body, has issued the following statement:

"In the course of an examination of the progress made in connection with the new French petroleum refineries, M. Louis Pineau pointed out that the various works would, with few exceptions, be completed by 1933, i.e., in less than the stipulated time.

"The expenditures on the installations amount to 1,000,000,000 francs, and practically all the work is being carried out by French industry."

AMERICAN CHEMICAL SOCIETY OFFERS INTERESTING PROGRAM

At the American Chemical Society's next annual meeting, which will be held in New Orleans March 28 to April 1, a symposium on chemical engineering processes in the oil industry will be held in addition to many papers of practical and immediate value to be presented before the petroleum division.

The following program has been arranged for the division of industrial and engineering chemistry as a symposium on the application of chemical engineering in the oil industry and these papers will be read during the technical sessions on Tuesday and Wednesday under the chairmanship of Dr. R. T. Haslam of the Standard Oil Development Co.

Fractionation of Straightrun Pennsylvania Gasoline, by Merrell R. Fenske.

The Treatment of Cracked Distillate by Stratford Method, by A. W. Hayford.

Total Heats of Certain Gas Oils (lantern), by P. C. Keith, W. W. Gary and J. T. Ward.

Some Factors Affecting Furnace Design (lantern), by P. C. Keith, D. W. Wilson and W. E. Lobo.

The Design of Rectifying Columns for Natural and Refinery Gasoline (lantern), by W. K. Lewis and G. L. Matheson.

The Graphical Method of Computation for Rectifying Complex Hydrocarbon Mixtures (lantern), by W. K. Lewis and J. Q. Cope, Jr.

Vapor Pressures and Latent Heats of Vaporization of Hydrocarbons (lantern), by J. B. Maxwell.

Heat Transmission in Pipe Still Convective Sections (lantern), by C. C. Monrad.

Corrosion of Protective Linings in Cracking Vessels (lantern), by Jacque C. Morrell and Gustav Egloff.

Preliminary Discussion of Equilibrium Curves Applied to Petroleum Tower Design, by S. N. Obryedshikoff and W. A. Peters, Jr.

Equilibria Among Vapor and Liquid Paraffin Hydrocarbons and Their Application to Design Problems (lantern), by Charles W. Selheimer, G. G. Brown and Mott Souders, Jr.

Synthetic Resins From 30 Petroleum Hydrocarbons (lantern), by Charles Allen Thomas and William H. Carmody.

Papers to be read before the regular meetings of the division of petroleum chemistry with C. R. Wagner of the Pure Oil Co. as chairman follows:

Magnesium Hydroxide in the Petroleum Industry, by F. T. Gardner and E. C. Higgins, Jr.

A Rapid Method for the Determination of Molecular Weights of Petroleum Fractions, by K. M. Watson and Charles Wirth.

A Laboratory Apparatus for the Continuous Extraction of Liquids for Low Boiling Solvents, by R. T. Leslie.

The Solubility of Ethyl Alcohol in Gasoline, by O. C. Bridgeman and Dale Querfeld.

Isolation of Normal Decane From Petroleum by Distillation and Equilibrium Melting, by Johannes H. Bruun and Mildred M. Hicks-Bruun.

The Isolation and Determination of Normal Heptane and of Methylcyclohexane in a Mid-Continent Petroleum (including a Determination of the Phase Equilibrium Diagram for the Condensed System Normal Heptane-Methylcyclohexane), by Mildred M. Hicks-Brunn and Johannes H. Bruun.

The Centrifugal in Acid-Treating Petroleum Lubricants, by Leo D. Jones.

AUTHORIZE DELAY IN SOUTHWESTERN RATES

WASHINGTON, D. C., Mar. 19.—The Interstate Commerce Commission Thursday authorized southwestern railroads to delay until July 14 revision of rates on petroleum and petroleum products between points in the Southwest.

The revision was due to be effective April 15. The railroads notified the commission last week that due to the large number of local tariffs necessary clerical work could not be completed.

COMPLETE NEW UNIT

The Hancock Oil Co. has just put the finishing touches on a new 1,500-bbl. topping unit at its Long Beach refinery. This gives the company a crude capacity of 14,000 bbls. per day.

BUILD RECOVERY UNIT AT UTAH OIL REFINERY

SALT LAKE CITY, Utah., Mar. 19.—The Utah Oil Refining Co. of this city is planning the construction and installation of the newest and latest type gasoline absorption plant at its local refinery. The Utah Oil Refining Co., starting in 1909 with 7 bbls. daily capacity, has steadily grown to its present 7,000 bbls. daily output. The contemplated improvements will cost approximately $400,000.

ORGANIZE HEINRICH CORP.

The Heinrich Refinery Process Corp. is now being organized with headquarters in Chicago to carry on general refinery construction and consulting work. The corporation will also sell a cracking process. E. T. Heinrich is president of the corporation. He is well known in refinery circles having been connected with several of the largest refining companies and companies engaged in the manufacture of refinery equipment and processes. Offices are located at 11 South LaSalle Street, Chicago.

INTERSTATE AIRPLANES SUBJECT TO STATE TAX

Companies operating airplanes and doing an interstate business must pay the 6-cent gasoline tax when refueling in South Carolina. The decision was rendered by the State Supreme Court and a portion of the decision is given below. There has been general interest manifested because similar cases are pending in other states.

"From the findings of the District Court it appears that the complainant is a Delaware corporation operating, in interstate commerce, air transport lines across the State of South Carolina; that its planes make regular stops at various points in the State but do not carry freight or passengers between such points, and practically its entire business is interstate in character; that it purchases gasoline in South Carolina for the use of its planes and that the seller adds to the price the amount of the state gasoline tax which the seller is required to pay under the act in question, and thus complainant has to pay 6 cents a gallon more than it otherwise would, the excess amounting to about $5,000 a year.

"The tax is described in the statute as a license tax, which, as applied in the instant case against the dealer, is for the privilege of carrying on the business of selling gasoline within the State. The tax is thus imposed upon the seller and the sales in question are interstate sales. The appellant emphasizes the fact that the tax has been construed by the Supreme Court of the State to be an excise tax and not a property tax.

"So far as the present question is concerned, the distinction is not important. If such a license tax for the privilege of making sales within the State were regarded as in effect a tax upon the goods sold, its validity could not be questioned in the circumstances here disclosed, as in that aspect the tax would be upon a part of the general mass of property within the State and hence subject to the State's authority to tax, although the property might actually be used in interstate commerce."

REFINERY PRICES LOWEST COMPARED TO 1926 BASIS

Wholesale commodity prices are lower on petroleum products at this time in relation to prices in 1926 than any other important groups. These data are compiled monthly by the Department of Labor and the following table gives the relationship which existed over February compared to a year ago and compared to January. In all cases, the average prices during 1926 is taken as the basis and is given an index value of 100.

	Feb., 1931	Jan., 1932	Feb., 1932
All commodities	76.8	67.3	66.3
Farm products	70.1	52.8	50.6
Foods	78.0	64.7	62.5
Hides and leather products	86 9	79.3	78.3
Textile products	70.9	59.9	59.8
Fuel and lighting materials	72.5	67.9	68.3
Metals and metal products	86.5	81.8	80.9
Building materials	82.5	74.8	73.4
Chemicals and drugs	83.3	75.7	75.5
House furnishing goods	88.1	77.7	77.5
Miscellaneous	71.5	65.6	64.7
Petroleum products	50.2	38.8	38.6

CONTINENTAL REFINERY FIRE

Fire damaged a portion of the centrifugal plant and chillers at the Continental Oil Co.'s refinery in Ponca City, Okla., March 20. While the fire lasted for several hours, it was confined to a small area and the damage is restricted to the dewaxing equipment used in the manufacture of bright stocks. Officials of the company have not announced the extent of the loss in the oil and damaged equipment.

Manufacture of Natural Gasoline

OFFER TO BUILD 2,000 GAS PLANTS IN OHIO

COLUMBUS, Ohio, Mar. 19.—The gradual expansion in the use of liquefied gas, affording the rural communities the convenience of natural and artificial gas continues to go on despite the falling off of practically all other programs of expansion.

A program of expansion to be announced recently is that of the Paramount Gas Utilities Co., a new corporation of Columbus, which proposes to install a new type of gas generating apparatus on the customer's premises in such manner as to furnish service to a few neighboring consumers, and to meter gas actually consumed, so as to furnish gas service to rural residents where the construction of transmission lines by the operating gas companies would be uneconomical, petitioned the commission for authority to finance an initial development as follows:

To finance 2,000 plants—no location for which is submitted, to sell 20,000 shares of Class A stock and 35,000 shares of Class B no-par shares. An estimate of the initial 2,000 installations totals the sum of $430,000.

LIQUEFIED GAS SERVICE FOR UTAH COMMUNITIES

ST. GEORGE, Utah, Mar. 18.—Gas is now being furnished in St. George, Parowan, Modena, Beaver, Milford, Fillmore, Kanab, Orderville, Glendale, Circleville, Panguitch, Marysvale and Richfield, all in southwest Utah. The service supplies 83 per cent propane, 12 per cent butane and 3 per cent ethane, the gas being shipped in containers from Cedar City, where the Zion Gas Co. has headquarters. Next year it is intended to replace the present service in such communities as patronage justifies, with pipe line distribution from a centrally located plant, to which the gas will be shipped in tank trucks.

FRANCHISE GIVEN

The Coos Gas Co., headquartered in Berlin, N. H., was recently granted a franchise for the service of butane gas in Berlin and Gorham, N. H. Berlin has a population of 22,000 and Gorham 3,000, both cities to be served from the same plant. Work on installing the plant and distribution system will begin about April 1,and is scheduled for completion on October 1.

Ovide J. Coulombe is president of the newly organized company, J. A. Vaillancourt is treasurer, Gilman Chapman is clerk. Directors are T. H. Samson, Eli J. King, George U. Duval, Oscar A. Dupont and Theodore Morin, all of Berlin.

OPERATING FIVE PLANTS

OKLAHOMA CITY, Okla., Mar. 21.—Natural gasoline production in the Oklahoma City Field has settled to a more constant figure over the past month and large quantities of gas are being processed. The Indian Territory Illuminating Oil Co., largest manufacturer in the field, is operating five plants including the one owned jointly by this company and the Wirt Franklin and Cromwell-Franklin interests. One plant remains idle, namely the one owned jointly with the Franklin-Cromwell interests located in NW, Section 19-11-2. These plants are each making between 20,000 and 25,000 gallons of gasoline daily making the total production of the Indian Territory Illuminating Oil Co. and its affiliated company more than 100,000 gallons daily. The operation of the jointly owned plant mentioned above is under the supervision of the Cromwell-Franklin Oil Co.

REFINERS PURCHASED LESS NATURAL GASOLINE IN 1931

Except for the Mid-Continent, every group of refiners used less natural gasoline in 1931 than the year before. The total consumption of natural gasoline at refineries decreased from 42,884,000 bbls. in 1930 to 35,116,000 bbls. in 1931. Thisfact is mentioned because as cracking is decrease was accompanied by a 5,000,000-bbl. decrease in the volume of straight-run gasoline produced. The total difference, however, was approximately equalized by an increase in the volume of cracked gasoline made. The volume of cracked gasoline increased from 164,243,000 bbls. in 1930 to 176,181,000 bbls. in 1931, or 11,938,000 bbls.

Comparing the decrease in the combined production of straightrun gasoline and the volume of natural gasoline produced, it may be seen that the two nearly equalize.

The combined output of straightrun and natural used in 1930 was 268,188,000 bbls. and last year declined to 255,379,000 bbls. or there were 12,809,000 bbls. less gasoline from these sources. This is mentioned because as cracking is accompanied by a decrease in the degree of cracking is accompanied by a corresponding increase in the volume of light fractions. The total difference in the volume of light fractions was accounted for by the use of vapor-tight tankage and other means of holding down evaporation losses, and the benefits derived from a vapor recovery system, the refiner now needs just as much natural gasoline to blend up his straightrun output as ever. In fact, there is a greater volume of natural gasoline re-need for natural gasoline in the average straightrun made today than that made years ago because closer refinery fractionation and trends in automobile design call for the addition of a good proportion of volatile fractions. But refiners have these vapor recovery systems and vapor-tight tankage for use in their normal skimming operations and a balance has been rather definitely established between the volume of straightrun gasoline made and the volume of light fractions needed to bring this straightrun up to a desirable volatility.

It is interesting to note that in Table 2, which shows the growth in the use of natural gasoline by refiners over a period of 12 years, that cracking did not stop the utilization of natural gasoline and instead there has been a rather constant and substantial increase in its use on the part of refiners during this time.

Considering the fact that there is only about the same proportion of straightrun gasoline included now as there was 12 years ago and the use of natural has had this steady substantial rise, despite increased cracking, future trends cannot be accurately predicted if based on past experience.

It is true, however, that cracking in the future will probably be more intense and will produce a greater yield of gas and light gasoline than in the past, due to the desire to make motor fuels of high octane number. On the other hand, as the program for making gasolines of higher antiknock value progresses, there is a growing recognition of well-stabilized natural gasoline as a high antiknock value blending material and also as a motor fuel for direct consumption.

This latter use is becoming an increasing factor in the motor fuel market and should the natural gasoline industry in general go into the business of selling its product to the consumer direct instead of to the refiner it will simply mean that the two fuels will openly complete whereas in the past the outlet has been pretty well under the control of the refiner.

The tendency to utilize less and less natural gasoline on the part of refiners was naturally most pronounced in those areas where the delivered cost of natural gasoline was high. This applies to the refineries located along the Gulf Coast and along the East Coast. For instance, the Gulf Coast refiners used 12,217,000 bbls. of natural in 1930 and took but 7,848,000 bbls. last year. The Atlantic Coast refiners used 2,223,000 bbls. in 1930 and only 1,500,000 bbls. last year.

The greatest decrease is shown on the part of California refiners where the volume dropped from 14,050,000 bbls. in 1930 to 11,201,000 bbls. last year. This decrease can be best accounted for by the fact that there was a large decrease in the total output of motor fuel and especially in the output of straightrun gasoline. The decrease in the production of straightrun gasoline amounted to more than 10,000,000 bbls.

It is also interesting to note that in those areas where the consumption of natural gasoline is the least, it is also true that the practice of cracking has been carried to the highest degree. In the East Coast refineries the output of motor fuel is composed of but 2.2 per cent natural gasoline and 53.6 per cent cracked gasoline. Contrasted with this is the situation in the Mid-Continent area where the motor fuel output contains from 4 to 5 times this proportion of natural. In the Oklahoma-Kansas group, for instance, the percentage of natural gasoline is shown at 8.8 with 36.3 per cent cracked gasoline and the inland Texas consumption of natural gasoline represented 11 per cent with 26.7 per cent of the motor fuel output as cracked gasoline. In the other areas where the percentage of natural gasoline lies in between these extremes, it is also shown that the percentage of cracked gasoline varies in inverse proportion.

TABLE 1—RELATIVE VOLUMES OF NATURAL GASOLINE, STRAIGHTRUN AND CRACKED GASOLINES BLENDED BY AREAS IN 1931 AND 1930 TO MAKE MOTOR FUEL

	Straightrun Bbls.	Straightrun %	Cracked Bbls.	Cracked %	Nat. gasoline Bbls.	Nat. gasoline %
1931						
East Coast	30,634,000	44.2	37,169,000	53.6	1,509,000	2.2
Appalachian	9,858,000	56.4	7,094,000	40.6	515,000	3.0
Ind., Ill., Ky., etc.	32,709,000	48.7	31,506,000	47.0	2,898,000	4.3
Oklahoma, Kansas	33,520,000	54.9	22,156,000	36.3	5,351,000	8.8
Inland Texas	20,043,000	62.3	8,611,000	26.7	3,534,000	11.0
North Louisiana-Arkansas	4,343,000	50.4	3,284,000	38.1	994,000	11.5
Coastal Texas	32,631,000	43.0	36,938,000	48.7	6,313,000	8.3
Coastal Louisiana	7,598,000	42.6	8,714,000	48.8	1,535,000	8.6
Rocky Mountain	5,344,000	45.1	5,232,000	44.2	1,266,000	10.7
California	43,583,000	62.0	15,477,000	22.0	11,201,000	16.0
Total United States	220,263,000	51.1	176,181,000	40.8	35,116,000	8.1
1930						
East Coast	30,064,000	47.6	30,722,000	48.9	2,223,000	3.5
Appalachian	9,194,000	61.6	5,130,000	34.4	590,000	4.0
Ind., Ill., Ky., etc.	31,615,000	49.4	29,390,000	46.0	2,925,000	4.6
Oklahoma, Kansas	35,311,000	56.1	22,541,000	35.8	5,077,000	8.1
Inland Texas	17,522,000	62.2	7,784,000	27.6	2,865,000	10.2
North Louisiana-Arkansas	2,983,000	36.8	3,730,000	46.0	1,395,000	17.2
Coastal Texas	30,436,000	40.9	33,678,000	45.8	9,422,000	13.3
Coastal Louisiana	8,430,000	41.2	9,367,000	45.5	2,795,000	13.3
Rocky Mountain	5,800,000	43.9	5,856,000	44.4	1,543,000	11.7
California	53,949,000	64.0	16,045,000	19.3	14,050,000	16.7
Total United States	225,304,000	52.0	164,243,000	38.0	42,884,000	10.0

TABLE 2—PERCENTAGE OF GASOLINE BLENDED BASED ON CRUDE OIL REFINED

	Straightrun gasoline output	Cracked gasoline output	Total straightrun and cracked	Natural gasoline used	Total refinery gasoline output
1918	22.7	2.6	25.3	0.8	26.1
1919	22.5	2.8	25.3	0.8	26.1
1920	22.6	3.5	26.1	0.7	26.8
1921	22.6	4.5	27.1	0.6	27.7
1922	22.8	6.0	28.8	0.7	29.5
1923	24.0	6.0	30.0	1.0	31.0
1924	25.0	6.2	31.2	1.9	33.1
1925	23.1	9.3	32.4	2.7	35.1
1926	22.9	12.0	34.9	3.6	38.5
1927	23.8	12.2	36.0	3.9	39.9
1928	24.0	13.4	37.4	3.9	41.3
1929	24.8	14.5	39.3	4.7	44.0
1930	24.3	17.7	42.0	4.6	46.6

Note—Prior to 1924 estimated.

NEW EAST TEXAS GASOLINE PLANT

Arkansas Fuel Oil Co.'s natural gasoline plant now under construction north of Willow Spring, northern Gregg County, in the East Texas Field. Most of the gas will come from the company's leases in the field but gas will also be taken from the properties of the Yount Lee Oil Co. and the Roeser & Pendleton, Inc.

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REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINES

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
*U. S. Motor	.03¾	.03⅝	.03½	.03⅝
60-62 400	.03⅝	.03¾	.03⅝	
64-66 390	.03¾	.03⅞	.03¾	.03⅞
64-66 375	.03⅞	.04	.03⅞	.04
68-70 350	.04	.04¼	.04⅛	.04¼
NORTH TEXAS—				
*U. S. Motor	.03⅜	.03½	.03⅜	.03½
60-62 400	.03⅝		.03½	.03⅝
64-66 390	.03¾	.03⅞	.03¾	.03⅞
64-66 375	.03⅞	.04	.03⅞	.04
64-66 360	.04	.04⅛	.04⅛	
‡NORTH LOUISIANA—				
*U. S. Motor	.03⅞	.04	.03¾	
60-62 400	.04¼		.04	
‡ARKANSAS—				
*U. S. Motor	.03⅞	.04	.03¾	
CHICAGO Based on Okla. (Group 3)—				
*U. S. Motor	.03½	.03¾	.03½	.03¾
60-62 400	.03⅝	.03⅞	.03⅝	.03⅞
64-66 375	.04	.04¼	.03⅞	.04⅛
Aviation fighting grade	.05	.05¼	.04¾	.05¼
68-70 360	.04¼	.04⅝	.04⅜	.04¼

Octane Ratings—Above quotations cover price ranges on gasoline in which no octane rating is given. In the case of the U. S. Motor and 60-62 400 endpoint grades where an octane rating of 57-65, inclusive, is guaranteed, prices are three-eighths cent per gallon higher than quotations shown in above tables; where an octane rating of better than 65 is guaranteed, the prices are five-eighths cent higher. In the case of the remaining grades, gasolines of 65 octane rating or higher are quoted one-fourth cent higher than the quotations shown in above tables. Unless otherwise provided by agreement of buyers and sellers, the Series 30 testing equipment of the Ethyl Gasoline Corp. is recognized as standard in determining octane ratings.

*Present distillation specifications on U. S. Motor gasoline are: 10 per cent evaporated, 167° F. maximum; 50 per cent, 284° F. maximum; 90 per cent, 392° F. maximum; residue not exceeding 2 per cent; maximum vapor pressure, 12 pounds. Additional specification on U. S. Motor gasoline available from bulletins of Bureau of Mines, Washington, D. C.

‡For Arkansas, Louisiana and Mississippi delivery.

	Mar. 22		Mar. 15	
PENNSYLVANIA (inland refineries)—				
U. S. Motor	.04		.04	
60-62 400	.04½		.04	
64-66 375	.04⅝		.04⅜	
68-70 350	.05¼		.05¼	

Octane Ratings—In the case of U. S. Motor and 60-62 400 endpoint grades, same price differentials based on octane ratings as shown in above tables for Oklahoma and other Mid-Continent areas.

	Mar. 22		Mar. 15	
CALIFORNIA (domestic movement only)—				
54-58 U. S. Motor	.04½	.05	.04½	.05
58-60 400	.05	.05½	.05	.05½
EAST COAST—				
U. S. Motor, below 65 octane:				
New York (Bayonne)	.05½	.06	.05½	.05¾
Boston	.06		.06	
Baltimore, Md.	.06		.06	
Charleston, S. C.	.06		.06	
U. S. Motor, 65 octane and above:				
New York (Bayonne)	.06¼	.06½	.06	.06½
Boston	.06	.06¾	.06	.06¾
Baltimore, Md.	.06	.06¾	.06	.06¾
Charleston, S. C.	.06½		.06½	

NAPHTHAS

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
50-52 450 (blending)	.03⅜	.03½	.03⅜	.03½
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.04		.04	
ARKANSAS—				
48-50 450 (blending)	.03¾	.04	.03½	.03¾
CHICAGO Based on Okla. (Group 3)—				
50-52 450 (blending)	.03¼	.03½	.03¼	.03½
Cleaners' naphtha, 56-58 gr. 200 i.b.p.-320 e.p.	.05¾	.06	.05⅝	.05⅞
Lacquer diluent, 180 i.b.p.-250 e.p.	.09⅛	.09⅜	.09	.09¼
Lacquer diluent, 140 i.b.p.-200 e.p.	.09⅛	.09⅜	.09	.09¼
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.05⅞	.06⅜	.05¾	.06¼
Stoddard solvent, 300 i.b.p.-410 e.p., over 100° flash	.05	.05¼	.04⅞	.05⅛
Pet. thinner, 200, 300 i.b.p.-415 e.p., over 83° flash	.04½	.04¾	.04⅜	.04⅝
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.05⅜	.05⅝	.05¼	.05½
Petroleum spirits	.04	.04⅜	.03⅞	.04¼

NATURAL GASOLINES

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
Grade 18-55	.02⅜	.02½	.02	.02¼
Grade 26-70	.01¾	.02	.01⅝	.01¾
Grade 30-70	.01⅝	.01¾	.01½	
NORTH TEXAS—				
Grade 18-55	.02⅜	.02½	.02	.02¼
Grade 26-70	.01¾	.01⅞	.01⅝	.01¾
Grade 30-70	.01⅝		.01½	.01⅝
NORTH LOUISIANA—				
Grade 26-70	.02¼		.02	
CALIFORNIA—				
75-78 375	.04¼	.05	.04¼	.05

Note—Grades 18-55, 26-70 and 30-70 are three of 24 grades adopted by the Natural Gasoline Association of America effective January 1. The grades are based on pounds vapor pressure and amount evaporated at 140° F. See page 74 of January 7 issue for explanation of new grading system. While not exactly the same specifications apply, Grade 18-55 corresponds to the former Grade A; Grade 26-70 to former Grade AA and Grade 30-70 to former Grade BB.

KEROSENES

(All kerosenes water white)

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
41-43	.02⅝	.02¾	.02⅝	.02¾
42-44	.02¾	.02⅞	.02¾	
NORTH TEXAS—				
40-41	.02⅝		.02⅝	
41-43	.02¾		.02¾	
‡NORTH LOUISIANA—				
41-43	.03¼		.03¼	
42-44	.03½		.03¼	.03½
‡ARKANSAS—				
41-43	.03		.03	.03¼
PENNSYLVANIA (inland refineries)—				
45	.04		.04	
46	.04¼		.04¼	
47	.04⅝		.04⅝	
CHICAGO (Based on Group 3)—				
41-43	.02⅝	.02⅞	.02⅝	.02¾
42-44	.02⅞	.03	.02¾	.03
***CALIFORNIA—**				
38-40 high burning test	.03¾	.04½	.03¾	.04½
NEW YORK (Bayonne, N. J.)—				
41-43	.05¼	.05½	.05¼	.05½

*For Pacific Coast consumption.

‡For Arkansas, Louisiana and Mississippi delivery.

TRACTOR FUELS*

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
39-41 prime white	.02¼		.02¼	
38-40 light straw	.02	.02⅛	.02	.02⅛
NORTH TEXAS—				
38-40 light straw	.02	.02¼	.02	.02¼
CHICAGO (Based on Group 3)—				
38-40 light straw	.02	.02⅛	.02	.02⅛
PENNSYLVANIA (inland refineries)—				
41-43 prime white			.03½	.03¾

*There are no standard specifications for tractor fuels. Grades commonly sold have flash under 175° F. (open cup) and under 575° F. endpoint and less than .2 per cent sulphur. Tractor fuels are available from all Mid-Continent refining groups at prices in line with the Oklahoma market taking into consideration differentials in freight rates.

FURNACE OILS*

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
32-36 straw	.01¾	.01⅞	.01¾	.01⅞
36-38 straw	.01¾	.02	.01¾	.02
38-40 straw	.01⅞	.02⅛	.02	.02⅛
39-41 prime white	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—				
38-40 straw	.02	.02⅛	.02⅛	.02¼
‡LOUISIANA—				
36-40	.02¼	.02⅜	.02¼	.02⅜
‡ARKANSAS—				
32-36	.02⅛	.02¼	.02⅛	.02¼
CHICAGO (Based on Group 3)—				
32-36 straw	.01⅝	.01¾	.01⅝	.01¾
38-40 straw	.01¾	.02	.01¾	.02
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.03½		.03½	
NEW YORK (Bayonne, N. J.)—				
32-36	.03½		.03½	
36-40	.04½		.04½	

*Above prices are for furnace oils of zero cold test, under 190° F. flash and good odor.

‡For Arkansas, Louisiana and Mississippi delivery.

GAS OIL, DIESEL OIL AND FUEL OIL

Gas oil (G.O.) quoted per gallon basis; Diesel oil and fuel oil per barrel.

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
32-36 (G.O.) cracking stock	.01⅛	.01¼	.01	.01⅛
U.G.I. (G.O.)	.01	.01¼	.01	.01⅛
32-36, zero to 15 (G.O.) high flash	.01⅜	.01½	.01¼	.01⅜
28-30, zero to 10	.50	.55	.47½	.52½
26-30, zero to 10	.45	.50	.42½	.50
24-26	.37½	.42½	.37½	.42½
20-22	.30	.32½	.30	.32½
16-20	.25	.27½	.25	.27½
Below 16	.22½	.25	.22½	.25
NORTH TEXAS—				
32-36 (G.O.) industrial	.01⅛		.01⅛	
22-26	.40	.45	.40	.45
Below 20	.30	.35	.30	.35
‡NORTH LOUISIANA—				
32-36 (G.O.) zero	.02	.02⅛	.02	.02⅛
14-16	.35	.40	.35	.40
‡ARKANSAS—				
30-32 (G.O.) zero	.02		.02	
14-16	.35	.40	.35	.40
CHICAGO (Based on Group 3)—				
32-36 (G.O.) industrial	.01	.01⅛	.01⅛	.01⅛
28-30 (zero)	.52½	.57½	.55	.60
22-26	.32½	.37½	.32½	.37½
18-22	.27½	.30	.25	.30
Below 18	.22½	.25	.20	.25
PENNSYLVANIA (inland refineries)—				
36-40	.02⅞		.02⅞	

Note—Fuel oils of more than 40 cold test generally 5 to 10 cents per barrel less in all areas than shown in above tables.

‡For Louisiana, Arkansas and Mississippi delivery.

	Mar. 22		Mar. 15	
CALIFORNIA—				
30-34 (G.O.) per bbl.	.80	1.00	.80	1.00
27 plus Diesel	.75	.95	.75	.95
15-19 bunker (at tidewater)	.55	.75	.55	.75
15-19 bunker (cargo lots)	.55	.70	.55	.70
15-19 (tank cars)	.40	.70	.40	.70
GULF COAST—				
28-30 (G.O.)	.02¼	.02½	.02¼	.02½
Bunker C (bulk cargoes)	.38	.40	.38	.40
Bunker C (bunkers)	.45		.45	
NEW YORK (Bayonne, N. J.)—				
28 plus (G.O.)	.03½	.04	.03½	.04
*28-30 Diesel	1.30		1.30	
†Bunker C	.60		.60	

*Lighterage 6½ cents per barrel.

†Lighterage 5 cents per barrel.

PETROLEUM COKE*

Prices per ton f.o.b. refineries in Chicago area.

	Mar. 22		Mar. 15	
Breeze (screenings)	3.75		3.75	
Still runs	4.75		4.75	
Lump and egg	7.00	7.50	7.00	7.50

*Refiners will absorb freight up to 80 cents a ton.

NEUTRAL OILS

(Viscosity at 100° F., and Color)

	Mar. 22		Mar. 15	
OKLAHOMA (Group 3)—				
Zero to 10 Cold Test:				
150-3	.06¼	.06½	.06¼	.06½
180-3	.07½	.07⅝	.07½	.07⅝
180-4	.07	.07¼	.07	.07¼
200-3	.08½		.08½	
200-4	.08	.08¼	.08	.08¼
240-3	.09¾	.10	.09¾	.10
240-4	.09¼	.09½	.09¼	.09½
280-3	.11¼	.11½	.11¼	.11½
280-4	.10¼	.10½	.10¼	.10½
300-3.5	.11⅝	.12	.11⅝	.12
350-3.5	.12¼	.12½	.12¼	.12½
400-4	.12¾	.13	.12¾	.13
500-4.5	.13¼	.13½	.13¼	.13½
100-2 Paraffin Oil	.04¼	.04½	.04¼	.04½
15-30 Cold Test:				
200-3	.07¾	.08	.07¾	.08
200-4	.07½	.07¾	.07½	.07¾
240-3	.09¼	.09½	.09¼	.09½
240-4	.08¾	.09	.08¾	.09
280-3	.10¾	.11	.10¾	.11
280-4	.09¾	.10	.09¾	.10
PENNSYLVANIA—				
Viscosity at 70° F., and Color:				
150-3	.14	.14½	.14	.14½
180-3	.16½	.18	.16½	.18
200-3	.18½	.20½	.18½	.20½
220-3	.22	.23	.22	.23
36 Miners Neutral	.05½		.05½	
34 Neutral	.05½		.05½	
34 Sundebloom Neutral	.05		.05	
GULF COAST—				
Pale Oils:				
100-2-2½	.04½	.05	.04½	.05
200-3	.06	.06¼	.06	.06¼
300-3	.06½	.07	.06½	.07
500-3½	.08	.08½	.08	.08½
750-3½	.09	.09½	.09	.09½
1,200-3½	.10½	.11	.10½	.11
2,000-4	.12	.12½	.12	.12½
Red Oils:				
200-5-6	.05	.05½	.05	.05½
300-5-6	.05½	.06	.05½	.06
500-5-6	.06¾	.07	.06¾	.07
1,200-5-6	.09½	.10	.09½	.10
2,000-6 plus	.11	.11½	.11	.11½
CALIFORNIA—				
Pale Oils:				
100-2½-3	.08	.08¼	.08	.08¼
200-2½-3	.08	.08¼	.08	.08¼
300-3-3½	.08½	.08¾	.08½	.08¾
350-3-4	.09	.09¼	.09	.09¼
400-3-4	.09½	.09¾	.09½	.09¾
350-3-4	.10	.10¼	.10	.10¼
550-3-4	.10½	.11	.10½	.11
Red Oils:				
200-4½-5	.08	.08¼	.08	.08¼
300-5-6	.08½	.08¾	.08½	.08¾
350-5-6	.09	.09¼	.09	.09¼
400-5-6	.09½	.09¾	.09½	.09¾

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

450-5-6	.10	.10¼	.10	.10¼
500-5-6	.10½	.11	.10½	.11
600-5-6½	.11½	.12	.11½	.12
700-6½ plus	.12½	.12¾	.12½	.12¾
750-6½ plus	.13	.13½	.13	.13½
900-6½ plus	.14½	.14¾	.14½	.14¾
NEW YORK (Bayonne, N. J.)—				
Paraffin Oil:				
25 pale	.10¼		.10¼	
28 pale	.07¼		.07¼	
280 red	.12½		.12½	
250 red	.11½		.11½	
225 red	.10		.10	
200 red	.09¼		.09¼	

BRIGHT STOCKS AND STEAM REFINED STOCKS

OKLAHOMA (Group 3)—	Mar. 22		Mar. 15	
600 light green S.R.	.04	.06	.04	.06
600 dark green S.R.	.03	.04½	.03	.04½
Bright Stock:				
190-200 D	.17½	.18	.17½	.18
150-160 D, 0-10	.16		.15½	.16
150-160 D, 10-25	.15	.15½	.15	.15½
150-160 D, 25-40	.14½	.15	.14½	.15
150-160 E	.14½	.15	.14¾	.15
PENNSYLVANIA—				
600 S.R.	.13½		.13½	
650 S.R.	.15½	.15¾	.15½	.15¾
600 Pennsylvania flash	.16½	.16¾	.16½	.16¾
600 D filtered	.20	.20½	.20	.20½
600 E filtered	.15¾	.16	.15¾	.16
Pennsylvania Grade Bright Stock:				
10-15 pour test	.25		.25	
25-30 pour test	.22	.23	.22	.23
35 and above	.22		.22	

WAX AND PETROLATUM

(Prices per pound)

OKLAHOMA (Group 3)—	Mar. 22	Mar. 15
124-126 white crude scale	.01¾	.01¾
PENNSYLVANIA—		
122-124	.0205	.0205
124-126	.0205	.0205
NEW YORK (Bayonne, N. J.)—		
Refined Wax:		
120-122	.02⅞	.02⅞
125-127	.03⅛	.03⅛
130-132	.03⅝	.03⅝
133-135	.04⅛	.04⅛
135-137	.04¼	.04¼
Petrolatum in barrels in carload lots:		
Dark green	.01¾	.01¾
Amber	.02⅛	.02⅛
Extra amber	.02⅝	.02⅝
Cream	.04¾	.04¾
Lily white	.05¾	.05¾
Snow white	.06¾	.06¾

EXPORT PRICES

GASOLINE

GULF COAST—	Mar. 22		Mar. 15	
U. S. Motor	.04	.04⅛	.04⅛	.04¼
60-62 400	.04⅛	.04¼	.04⅝	
61-63 390	.04¼		.04⅝	
64-66 375	.04¼	.04⅜	.04⅝	.04½
LOS ANGELES, CALIF.—				
U. S. Motor, 53-55 437 e.p.	.03¾	.04¼	.04¾	.04¼
U. S. Motor, 65 octane num.	.05		.05	
U. S. Motor, 67 octane num.	.05¼		.05¼	
U. S. Motor, 69 octane num.	.05½		.05½	
58-62 400 endpoint gasoline	.04¼	.04¾	.04¼	.04¾

KEROSENE

GULF COAST—				
41-43 prime white	.04¼		.04¼	
41 water white	.04		.04	
LOS ANGELES, CALIF.—				
41-43 water white	.04	.04¾	.04	.04¾

LUBRICANTS

NEW YORK (Bayonne, N. J.)—				
600, steam refined cylinder stocks, in bbls.	.21	.22	.20	.21
650, steam refined	.23½	.24	.22½	.23
600, Pennsylvania flash	.24½	.25	.24	.25
630, Pennsylvania flash	.27½	.28	.27	.28
600, Warren E	.23½	.24	.22½	.23
600, Oil City E	.22½	.23	.21½	.22
Light 140-150 Bright Stocks	.30	.31	.29	.30
Dark 140-150 Bright Stocks	.29	.30	.28	.29

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a.m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea, Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.56
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.65
27-27.9	.75	.75	.76	...	.78	...	...	.73	.65	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	..	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.72
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

(Continued on Page 86)

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas (Nov. 3, 1931)† ..... $ .82
Corsicana heavy (Nov. 2, 1931)* ..... .49
Other fields.....See gravity table

†Posted by Panola Pipe Line Co., Magnolia Petroleum Co., Tidal Refining Co., Sinclair Refining Co., Gulf Pipe Line Co., Atlas Pipe Line Co. *Magnolia Petroleum Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective December 16, 1931)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) (Mar. 14, 1932) $1.32
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.55
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) (Feb. 26, 1932) 1.50
Penna Grade Oil in Buckeye Pipe Line Lines (Mar. 12, 1932) 1.35
Corning Grade Oil in Buckeye Pipe Line Co.'s line (Nov. 9, 1931) ..... .85
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 16, 1931) ... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

Tide Water Pipe Co.
(Effective March 14, 1932)

Bradford, Pa. $1.32
Allegany, N. Y. 1.32

Pure Oil Co.
(Effective December 16, 1931)

Cabin Creek, W. Va. $1.45
Bradford Hollow, W. Va. 1.45
Kelly's Creek, W. Va. 1.45

Pennsoil Co.
(Effective March 14, 1932)

Pennsylvania Grade Oil in National Transit Lines:
Group A $1.77
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B 1.76
Includes Titusville district.
Group C 1.75
Includes Turkey and Tidiout districts.
Group D 1.74
Includes Bear Creek and Porkey districts.
Group E 1.73
Includes Eidenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jamieson, Kennerdell, Emlenton, Tiona, Lacy and Kinsua districts.
Price depends on length of pipe line haul to plant at Oil City.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchison Counties.....See gravity table

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Ilea, light (Aug. 24, 1931) ..... $ .75
Ilea, heavy (Aug. 24, 1931) ..... .53
Fort Collins (Nov. 3, 1931) ..... .71
Florence (Nov. 3, 1931) ..... .65
Wellington (Nov. 3, 1931) ..... .61
Dutton Creek (Nov. 3, 1931) ..... .75
Rock Creek, Wyo. (Nov. 3, 1931) .... .85
Frannie, light (Nov. 3, 1931) ..... .61
Frannie, heavy (Nov. 3, 1931) ..... .51
Salt Creek.....Mid-Continent gravity table
Big Muddy (Nov. 3, 1931) ..... .83

CRUDE OIL GRAVITY TABLE

	Kansas and Oklahoma 1	North and Central Texas 2	East Central Texas 3	Gray County, Texas 4	Carson and Hutchinson Counties, Texas 5	Salt Creek, Wyo. 6	North Louisiana and Arkansas 7	Gulf Coast (Tex. and La.) 8	Cameron Meadows, La. 9
Below 25 degrees	...	...	...	...	...	...	...	$.70	$.60
25-25.9 degrees	...	...	...	...	...	...	...	.71	.60
26-26.9 degrees	...	...	...	...	...	...	...	.72	.61
27-27.9 degrees	...	...	...	...	...	...	...	.73	.62
28-28.9 degrees	...	...	...	...	...	...	...	.74	.63
Below 29 degrees	$.61	$.61	$.61	...	...	$.61	$.61	...	...
29-29.9 degrees	.63	.63	.63	...	...	.63	.63	.75	.64
30-30.9 degrees	.65	.65	.65	...	...	.65	.65	.76	.65
31-31.9 degrees	.67	.67	.67	...	...	.67	.67	.77	.66
32-32.9 degrees	.69	.69	.69	...	...	.69	.69	.78	.67
33-33.9 degrees	.71	.71	.71	...	...	.71	.71	.79	.68
34-34.9 degrees	.73	.73	.73	$.61	$.56	.73	.73	.80	.69
35-35.9 degrees	.75	.75	.75	.63	.58	.75	.75	.81	.70
36-36.9 degrees	.77	.77	.77	.65	.60	.77	.77	.82	.71
37-37.9 degrees	.79	.79	.79	.67	.62	.79	.79	.83	.72
38-38.9 degrees	.81	.81	.81	.69	.64	.79	.81	.84	.73
39-39.9 degrees	.83	.83	.83	.71	.66	.79	.83	.85	.74
40 degrees and over	.85	.85	.85	.73	.68	.79	.85	.86	.75

Column 1—Led by Continental Oil Co. effective November 2, 1931, and adopted on same day by other companies excepting Magnolia Petroleum Co. and White Eagle Oil Corp. and excepting that Carter Oil Co., Gypsy Oil Co. and Pure Oil Co. started their schedule at below 25 degrees, 53 cents; 25 degrees, 55 cents; with 2 cents added for each degree upward to 40 degrees and above at 85 cents. Magnolia Petroleum Co. adopted the price schedule in Oklahoma on January 8, 1932, and the White Eagle Oil Corp. in Kansas on January 1, 1932, on oil from 29 degrees upward, but posted 52 cents for oil below 28 gravity and 54 cents for 28 gravity oil.

Column 2—Led by Continental Oil Co. effective November 2, 1931, and followed by other purchasers on same day excepting Magnolia Petroleum Co. which met the prices on January 8, 1932, from 29 degrees upward, posting 52 cents for oil below 28 degrees and 54 cents for 28 gravity oil.

Column 3—Humble Oil & Refining Co. on November 2, and by other buyers excepting Magnolia Petroleum Co., which met the prices from 29 degrees upward on January 8, 1932, but posted 52 cents for oil below 28 degrees and 54 cents for 28 gravity oil.

Column 4—Led by The Texas Company, November 2, followed by Humble Oil & Refining Co., Gulf Pipe Line Co. and H. F. Wilcox Oil & Gas Co. same day. Magnolia Petroleum Co., January 8, 1932.

Column 5—Led by The Texas Company, November 2, followed on same day by Humble Oil & Refining Co. and Gulf Pipe Line Co. Magnolia Petroleum Co., January 8, 1932.

Column 6—Midwest Refining Co., November 2.

Column 7—Standard Oil Co. of Louisiana, November 4, 1931; The Texas Company, Gulf Refining Co. and Louisiana Oil Refining Co. same day. Magnolia Petroleum Co., January 8, 1932.

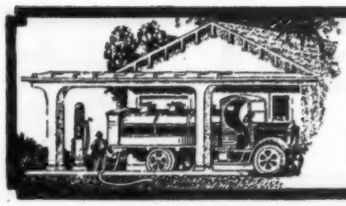
Column 8—Led by The Texas Company, November 2, followed on same day by Humble Oil & Refining Co., Magnolia Petroleum Co., Gulf Pipe Line Co. and Sun Oil Co., but two last named companies' schedules stop at 35 degrees and above at 81 cents, and the Sinclair Refining Co., but latter company's schedule stops at 31 degrees and above at 71 cents. Magnolia Petroleum Co. applied this schedule to Lockport and Iowa, La.

Column 9—Magnolia Petroleum Co., January 8, 1932.

Grass Creek (Nov. 3, 1931)	1.05
Elk Basin (Nov. 3, 1931)	1.05
Lance Creek (Aug. 24, 1931)	1.05
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.98
Lost Soldier (Nov. 3, 1931)	.69
Hamilton Dome (Nov. 3, 1931)	.45
Greybull (Nov. 3, 1931)	1.05
Cat Creek (Nov. 3, 1931)	1.05
Pondera (Nov. 3, 1931)	.90
Sunburst, Mont. (Nov. 3, 1931)	1.00
Hogback, N. Mex. (Aug. 24, 1931)	.80
Lea County, N. Mex. (Nov. 3, 1931)	.50
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (Aug. 24, 1931)	1.00
Maljamar (Aug. 22, 1931)	1.00
Artesia-Jackson (Nov. 3, 1931)	.50

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Lea County posted by Humble Oil & Refining Co., Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro Oil & Refining Co.

(Continued on Page 82)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns March 22.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago	15.0	15.0	3.0	9.0
Decatur, Ill.	15.5	15.5	3.0	9.1
E. St. Louis	14.8	14.8	3.0	8.3
Joliet	15.5	15.5	3.0	9.1
Peoria	15.5	15.5	3.0	9.1
Quincy	15.3	15.3	3.0	8.9
Davenport, Ia.	15.6	15.6	3.0	9.4
Des Moines	15.6	15.6	3.0	8.1
Keokuk	15.6	15.6	3.0	6.4
Sioux City	15.2	15.2	3.0	9.0
Duluth, Minn.	16.6	16.6	3.0	10.0
Mankato	16.2	16.2	3.0	8.1
Minneapolis	16.3	16.3	3.0	10.0
LaCross, Wis.	17.3	17.3	4.0	10.1
Milwaukee	16.2	16.2	4.0	9.0
Madison	16.4	16.4	4.0	9.2
Detroit, Mich.	12.5	12.5	3.0	9.1
Grand Rapids	14.8	14.8	3.0	10.7
Saginaw	13.2	13.2	3.0	10.5
Evansville, Ind.	16.3	15.6	4.0	10.0
Indianapolis	16.4	16.4	4.0	10.2
South Bend	16.5	16.5	4.0	8.1
Fargo, N. D.	18.0	18.0	3.0	12.0
Huron, S. D.	17.4	16.0	4.0	10.8
Sioux Falls	16.9	16.9	4.0	10.5
K. C., Mo.	15.0	15.0	3.0	7.0
Springfield*	15.0	15.0	3.0	7.9
St. Louis*	14.5	14.5	3.0	8.4
St. Joseph	14.6	14.6	3.0	7.6
Wichita, Kans.	13.9	13.9	3.0	6.1
Bartlesville, Ok.	13.1	15.1	4.0	7.1

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 1½ cents or more below the price on the regular grade.

Effective November 4—New dump discount applicable on all grades of gasoline sold from tank wagon. Any tank wagon customer buying 25 gallons or more at one time will be given 1-cent discount per gallon off tank wagon price at time of delivery. Customers not under contract receive no other discount.

Effective January 1—Discounts on Q.D.A. on 500 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	15.0	16.0	4.0	9.00
Fort Worth	15.0	16.0	4.0	8.0
Houston	12.0	15.0	4.0	9.0
San Anotnio	14.0	16.0	4.0	8.0
El Paso	13.0	15.0	4.0	11.0
Texarkana	*16.0	16.0	4.0	9.0
Muskogee, Ok.	11.0	13.0	4.0	7.0
Okla. City	13.0	15.0	4.0	7.0
Tulsa	13.0	15.0	4.0	8.0
Ft. Smith, Ark.	*16.5	16.5	5.0	*11.0
Little Rock	*17.5	17.5	6.0	*11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

*Less 2 cents to dealers.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	14.0	17.0	4.0	12.5
Pueblo	14.0	17.0	4.0	12.0
Grand Jctn.	18.0	21.0	4.0	14.5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	13.0	16.0	4.0	11.5
Butte, Mont.	17.0	20.0	5.0	16.0
Billings	18.0	21.0	5.0	14.5
Great Falls	21.0	23.0	5.0	16.0
Helena	20.0	23.0	5.0	16.0
Salt Lake, Utah	17.5	20.5	4.0	16.0
Albu'que, N. M.	17.0	20.0	6.0	14.0
Boise, Idaho	21.0	24.0	5.0	18.0
Twin Falls*	21.0	22.0	5.0	18.0

*Two-cent discount off tank wagon to dealers.

OHIO

Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points	16.0	16.5	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	15.0	16.0	3.0	11.0
Philadelphia	14.0	15.0	3.0	11.0
Scranton	15.0	16.0	3.0	11.0
Allentown	15.0	16.0	3.0	11.0
Altoona	15.0	16.0	3.0	11.0
Erie	15.0	16.0	3.0	11.0
Dover, Del.	15.0	16.0	3.0	11.0
Wilmington	15.0	16.0	3.0	11.0
Springf'd, Mass.	13.5	14 5	3.0	8.5
Worcester	15.3	16.3	3.0	8.5
Boston	14.5	15.5	3.0	9.5
Providence, R.I.	13.5	14.5	2.0	8.5
Hartford, Conn.	14.5	15.5	2.0	10.0
New Haven	14.6	15.6	2.0	10.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.*	19.5	19.5	6.0	9.0
Augusta	20.0	21.0	6.0	14.0
Macon	17.0	18 0	6 0	12.0
Savannah	18.0	19.0	6.0	11.0
Birm'ham, Ala.	20.5	20.5	6.0	12.0
Mobile	20.0	20.0	5.0	10.0
Montgomery	21.5	21.5	6.0	13.5
Jackson, Miss.	16.0	17.0	5.5	10.0
Vicksburg	17.0	18.0	5.0	8.0
Jack'ville, Fla.	19.0	20.0	7.0	11.0
Miami	21.0	22.0	7.0	13.0
Pensacola	20.0	20.0	7.0	13.0
Tampa	19.0	20.0	7.0	14.0
Lexington, Ky.	17.0	18.0	5.0	10.0
Covington	16.0	17.0	5.0	10.0
Louisville	15.0	16.0	5.0	10.0
Corbin	18.0	19.0	5.0	15.0

A third grade "Kyso Green" is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

*An additional discount of 1 cent is offered to dealers effective October 6.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	15.7	16.2	3.0	11.5
Newark	14.7	15.2	3.0	8.5
Annapolis, Md.	16.2	16.7	4.0	10.0
Baltimore	15.4	15.9	4.0	8.0
Cumberland	17 2	17.7	4.0	12.0
Wash'g'n, D. C.	13.9	14.4	2.0	10.0
Danville, Va.	18.0	18.5	5.0	11.3
Norfolk	16.5	17.0	5.0	10.3
Petersburg	17.5	18.0	5.0	11.3
Richmond	16.5	17.5	5.0	10.7
Roanoke	18.2	18.7	5.0	12.0
Charles'n, W.Va.	16.7	17.2	4.0	11.5
Parkersburg	15.4	15.9	4.0	10.2
Wheeling	16.6	17.1	4.0	11.4
Charlotte, N. C.	19.0	19.0	6.0	10.7
Hickory	19.8	20.3	6.0	12.6
Mt. Airy	19.7	20.2	6.0	12.5
Raleigh	19.4	19.9	6.0	12.2
Salisbury	18.0	18.0	6.0	12.5
Charleston, S.C.	17.5	18.0	6.0	10.8
Columbia	19.4	19.9	6.0	12.2
Spartanburg	19.7	20.2	6.0	12.5

Two and one-half cents per gallon discount off tank wagon price of gasoline to dealers except Washington, D. C., and States of Maryland and New Jersey, where discount is 2½ cents.

Prices shown above are for standard gasoline.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	12.3	14.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

PACIFIC COAST TERRITORY

Standard Oil Co. of California*

	Gasoline: Tank truck	Gasoline: Posted retail	Gasoline: Incl'ds tax of	Kero. tank wagon
Fresno	12.5	16.5	3.0	17.0
San Francisco	12.5	16.5	3.0	15.5
Los Angeles	12.0	16.0	3.0	15.5
Reno, Nev.	16.0	20.0	4.0	19.0
Portland, Ore.	14.0	18.0	4.0	16.5
Seattle, Wash.	15.0	19.0	5.0	16.5
Tacoma	15.0	19.0	5.0	16.5
Spokane	18.5	22.5	5.0	20.5
Phoenix, Ariz.	14.5	17.0	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	16.0	16.0	6.0	†16.0
Baton Rouge	16.5	16.5	5.0	†12.0
Alexandria	16.0	16.0	6.0	†12.0
Lafayette*	17.5	17.5	6.0	†12.0
Lake Charles*	16.5	16.5	6.0	†12.0
Shreveport	14 5	14.5	5.0	†12.0
Knoxville, Tenn.	21.0	21.0	7.0	13.5
Memphis	18.5	18.5	7.0	11.0
Chattanooga	20.5	20.5	7.0	11.0
Nashville	20.0	20.0	7.0	12.5
Bristol	19.5	19.5	7.0	14.0
Lt. Rock, Ark.	17.5	17.5	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Kerosene prices in Louisiana include 1 cent tax except New Orleans where tax is 2 cents.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	14.9	15.9	4.0	9.25
McCook	17.0	17.0	4.0	7.5
Norfolk	16.75	17.75	4.0	9.75
N. Platte	17.75	18.75	4.0	10.50
Scottsbluff	17.0	17.0	4.0	9.0

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade), 1 cent off normal service station price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6.23
V.M.P. naphtha	12.7	7.73
Cleaners' naphtha	15.2	9.23
Stanisol	15.2	9.23

Tank wagon prices f.o.b. Chicago January 6, 1932. Each of above prices subject to discount of .1 cent per gallon for 150-gallon lots if covered by contracts.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.ob. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more, 6 cents.

Stanolex Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial), 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Atlantic Refining Co., effective March 8, established a gasoline tank wagon price of 10.5 cents and service station of 11.5 cents at Springfield, Mass. Prices do not include 3-cent state tax.

Standard Oil Co. of Kentucky, effective March 15, established a tank wagon price of 18 cents for gasoline at Savannah, Ga. Effective March 14, company advanced gasoline tank wagon to 17 cents and service station to 18 cents at Vicksburg, Miss. Effective March 10, comjany reduced gasoline tank wagon price to 17 and service station price to 18 cents at Macon, Ga.

Standard Oil Co. of Ohio, effective

(Continued on Page 91)

CRUDE OIL PRICES

(Continued from Page 81)

WEST TEXAS

Iatan and Westbrook	Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties*	$ .50
Lea County, N. Mex.‡	.50
Toborg, Pecos County, Aug. 25, 1931†	.35

*The Texas Company, November 2, 1931; Magnolia Petroleum Co., Humble Oil & Refining Co., Gulf Pipe Line Co., same day. †Shell Petroleum Corp. ‡Humble Oil & Refining Co., The Texas Company, November 2, 1931.

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers	See gravity table
Jennings, La. (Nov. 2, 1931)*	$ .45
Lockport, La. (Aug. 27, 1931)†	See Gulf Coast gravity table
Refugio, light	See gravity table
Refugio, heavy (Nov. 2, 1931)‡	.75
Markham (Nov. 2, 1931)§	.67
High Island (Nov. 2, 1931)¶	.65

*Gulf Refining Co. †Magnolia Petroleum Co. ‡Humble Oil & Refining Co. §The Texas Company. ¶Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) (Nov. 4, 1931)	$ .55
Urbana, Ark.	See note below
Bellevue, La. (June 3, 1931)	.35
Urania, La. (Nov. 2, 1931)	.50
Calion, Ark. (Aug. 22, 1931)	.52
East El Dorado, Ark. (Nov. 4, 1931)	.55
Stephens, Ark., below 29° (Aug. 24, 1931)	.41
Stephens, Ark., 29° and above (Aug. 24, 1931)	.44
Other fields	See gravity table

Note—Smackover, all grades, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., Bellevue posted by Magnolia Petroleum Co.; Urania by H. L. Hunt, Inc., and Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.; Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Nov. 2, 1931)‡	$ .40
Luling (Nov. 2, 1931)†	.40
Mirando (Nov. 2, 1931)†	.75
Pettus (Nov. 2, 1931)*	.85
Salt Flat (Nov. 2, 1931)*	.60
Thrall§	
Lytton Springs (Lockhart)	See gravity table
Dobrowolski¶	Same as Mid-Continent gravity scale up to and including 38-38.9°.
Somerset¶	Same as Mid-Continent gravity scale up to and including 38-38.9°.

‡The Texas Company. *Humble Oil & Refining. †Magnolia Petroleum Co. §Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective November 3, 1931)

Lima	$1.00
Wooster	1.15
Illinois*	.95
Indiana	.60
Princeton	.95
Plymouth	Shut in
Western Kentucky	.90
Midland, Mich. (Oct. 9, 1931)*	.55
Dundee, Mich.†	Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale
Upper and Lower Traverse Sands, Mich.†	Same as Mid-Continent gravity scale
Somerset, Ky. (Nov. 4, 1931)	.80
Hart County, Ky. (Jan. 18, 1932)‡	.60

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and delivered through own pipe line.

MEXICO

Panuco*	$ .45

*F.o.b. ship, based on February transactions and exclusive of production and export taxes and bar dues.

CANADA

Ontario (Nov. 3, 1931):	
Petrolia*	$1.90
Oil Springs*	1.97
Alberta (Aug. 24, 1931):	
Turner Valley†:	
Crude oil 45-45.9	2.60
Crude oil 50 and above	2.65
Crude naphtha	3.13
Discolored naphtha	2.88

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Of Interest to Sales Departments

TIRE COMPANIES CEASE PREFERENTIAL DISCOUNT

NEW YORK, Mar. 19.—Expansion of large oil marketers into the distribution of automobile supplies at their retail stations has received a setback with the action of a number of tire manufacturers in rescinding the special preferential discounts given oil companies which have been buying tires at or below the cost to dealers.

F. A. Seiberling, president of the Seiberling Rubber Co., who has been outspoken in his advocacy of the protection of the regular tire dealers against the competition of the oil companies, announcing that a number of tire companies had withdrawn their special prices to the oil companies, said here: "The initial skirmish has been won by the independent dealers. For the first time in years the united action of the retailers has worried the large manufacturers into action. This proves that the tire industry can be restored to the profitable policies which once prevailed if only the independent dealers will maintain a united front and resist with real vigor and enthusiasm every move on the part of the manufacturers which deprives them of their legitimate business—the tire-replacement business."

CANADIAN GASOLINE PROBE

CHATHAM, Ontario, Mar. 19.—The investigation of the gasoline industry in Canada by the banking and commerce committee of the federal parliament resumed on March 15, when testimony was given by L. A. Brooks, comptroller of the McColl-Frontenac Oil Co. of Montreal and Toronto.

Mr. Brooks testified that the gross sales of gasoline by his company in 1931 were 57,873,482 gallons, the selling price was $9,441,051, and the net profit was $997,695, or 1.72 cents a gallon. He submitted information as to the financial structure of the company, but a technical inquiry into the capital structure of the company was deferred till the president could be on hand to answer questions.

APPROVE D. OF C. INCREASE

WASHINGTON, D. C., Mar. 16.—An increase of the gasoline tax in the District of Columbia from 2 to 4 cents a gallon is recommended by the United States Efficiency Bureau in a report on the gasoline tax bill referred to it by the Committee on the District of Columbia of which Senator Arthur Capper of Kansas is the chairman. The Efficiency Bureau is a fact-finding bureau to which are referred many subjects for investigation and report by Congress and by the several departments of the Government.—C. E. K.

MERGE GERMAN MARKETING

NEW YORK, Mar. 19. — Thenania-Ossag (Royal Dutch) and Olex (Anglo-Persian) are reported to be planning a consolidation of operations in Germany.

The two companies are the German distributing agencies for Royal Dutch and Anglo-Persian, and a consolidation in that country would be along the same lines as the recent fusing of marketing operations by the two organizations in the United Kingdom.

EXEMPT FILLING STATIONS

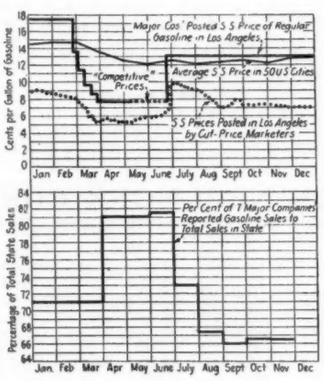
The South Carolina Tax Commission has announced that filling stations not handling accessories are exempt from the chain store tax. The federal District Court on February 2 held the law to be constitutional and collections for 1930, 1931 and 1932 are now being made.

GASOLINE PRICE WARS REFLECT UNECONOMIC MARKET CONDITION

By Sidney A. Swensrud*

Comment already has been made upon the introduction of a third-grade gasoline as an evidence and an acknowledgment of the trend toward lower margins. Simply as an example of the probable impossibility of staving off this trend by keeping up retail prices, I should like to discuss some of the marketing developments during 1931 in California, and particularly in southern California.

I think it is true that in that section there has been a more noticeable effort than in most sections to preserve wide margins between the refinery cost of gasoline and the posted retail price thereof. This is evidenced by the fact that except during "price wars," which have come to be more or less periodic events in that area, the major companies' posted retail


Major Cos' Posted S S Price of Regular Gasoline in Los Angeles
"Competitive" Prices
Average S S Price in SOUS Cities
S S Prices Posted in Los Angeles by Cut-Price Marketers
Cents per Gallon of Gasoline
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec
Per Cent of 7 Major Companies Reported Gasoline Sales to Total Sales in State
Percentage of Total State Sales
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec

gasoline prices actually are higher than in most other sections of the country, even though the refinery cost of gasoline in the Los Angeles area obviously is much lower than the cost of gasoline delivered to the average large consuming center in the United States. I believe the reason usually set forth for this situation is that during most of the early period of rapid development the marketing in California was very largely dominated by four or five major companies that got entrenched in the service station end of the business relatively early. As more and more crude oil production came along after 1921, however, it was inevitable that many small independent refineries should spring up and begin to sell gasoline, for the crude fields were located in the very heart of the most fertile gasoline marketing area in the world.

Figure 1 gives a graphic picture of the gasoline marketing story of 1931 in California. As the year opened the major companies' posted retail price of ordinary gasoline in Los Angeles was 17.5 cents per gallon (exclusive of tax). This compares with the following service station prices (less tax) then prevailing in various other representative cities:

	Cents per gallon
Tulsa, Okla.	13.0
Houston, Tex.	15.0
Chicago, Ill.	14.0
New York City	13.3
Philadelphia, Pa.	16.0
Detroit, Mich.	14.8
Cleveland, Ohio	14.0

It might be noted, for example, that the Los Angeles price was 4.5 cents per gallon higher than in Tulsa, another crude producing and refining center; and 3.5 cents higher than in either Chicago or Ohio, even though the transportation cost on gasoline delivered to Ohio, for instance, is about 3 cents per gallon—and some of the gasoline sold in Ohio comes all the way from California!

The small crosses in the chart shown below the posted price line indicate some of the lower prices which were being publicly posted in Los Angeles by the so-called independents and price cutters.

The 17.5-cent price lasted until late in February, when the price-cutting situation apparently reached such a state that the major companies felt impelled to meet it. In less than a month their posted price fell 10 cents per gallon, and, indeed, for a time thereafter some of the major companies posted no price at all but merely announced "competitive" prices.

It will be interesting to note what happened to the relative sales. The published tax figures of the State of California show sales by individual companies and I have simply totaled the figures for what seemed to be the seven leading major companies and taken the percentage of their sales to the total sales for the State. Up to April, 1931, the figures were available only by quarters, but for the first quarter of 1931 these seven companies handled about 71 per cent of the total sales made in the State. Following the price reduction in March, however, this percentage increased sharply, rising in April and May to 81 per cent, and in June to almost 82 per cent.

Then the price war ended. During the last few days of June, the leading companies increased their price 5.5 cents per gallon, to 13 cents (net). A strong appeal then was made through newspapers and other media urging the public to support the new prices and refuse to patronize price cutters, and to save the State's leading industry from destruction. Thus the year 1931 afforded examples not only of production control by martial law but of price maintenance by patriotism.

For a brief interval the price cutters seem to have followed the major companies' prices a little more closely, but very soon the cut-price signs again were carrying prices of 10 to 12.5 cents per gallon (including tax), as compared with the major companies' price of 16 cents (including tax).

The effectiveness of the new price is probably best measured by the results. From June to July the percentage of the seven major companies' sales to the total sales fell from 82 to 73 per cent; in August, it slipped off to 67.5 per cent; and by November, the last month for which I was able to get the data, it had got down to about 65.5 per cent.

The 13-cent net price established in late June continued without change throughout the remainder of the year; a news item dated December 31, 1931, stated that retail marketing conditions in southern California were very unsettled and that the loss of gallonage of the major companies to price cutters might precipitate a downward revision of price schedules and might even result in a resumption of the policy of the competitive price sign.

Taking the year as a whole, I am inclined to think that the average motorist in southern California in 1931 probably paid a price for his gasoline which bore about the same relation to the refinery cost of gasoline in that section as the average price of gasoline in other sections of the country bore to the delivered cost of gasoline there, and I think that that relationship is likely to continue. It was suggested last year that a company could nominate any price it chose but it could do little to influence the average price that ultimately would be paid. The net result for 1931 in California of the sequence of wide margins, followed by drastic price cuts and then by a restoration of the wide margins, so far as sales are concerned, seems to have been a slight weakening in the relative position of the major companies. One may consider also to what extent the general policy of wide margins has been instrumental in encouraging new outlets. It is a commonplace observation that in few sections are gasoline stations so prolific as in southern California—even in relation to the tremendous gallonage marketed in that area. In few places either have the margins or discounts allowed to dealers been so wide—or are as wide today—as in California, and likewise, in few places, I believe, have there been more complaints of major companies' own dealers secretly cutting the posted retail prices of their supplying companies

The experience of California, in greater or less degree, I think would be typical of many sections of the country, and to my mind simply illustrates the futility of any interpretation of widespread price cutting which does not regard it as symptomatic of an uneconomically wide margin.

*Part of paper delivered at A.I.M.E. meeting, New York. Remainder of paper published in February 25, 1932, issue of The Oil and Gas Journal, page 17. Mr. Swensrud is assistant to the president of the Standard Oil Co. of Ohio.

NEW MANCHESTER TERMINAL

NEW YORK, Mar. 19.—A new bulk oil terminal, adding approximately 500,000 tons of storage to the existing plant, is now nearing completion on the Manchester Ship Canal at Stanlow, about 4½ miles from the entrance to the canal. The original plant at Stanlow was opened in 1922, and is now the second largest refined products handling center in the United Kingdom, being exceeded only by the London terminals.

The new terminal has a dock 650 feet in length and 180 feet wide, its entrance approach providing a turning basin for tankers at this point.

FRANCE USING WATERWAYS

NEW YORK, Mar. 19.—Utilization of inland waterways for the distribution of gasoline and other petroleum products in the United States is being paralleled by a similar development in France, according to reports from Paris. A census of river tankers taken in France last year showed 379 small tankers, with aggregate carrying capacity of 153,501 metric tons, in service. The last previous census, taken in 1926, showed 157 tankers in operation, with aggregate carrying capacity of 68,852 tons.

ONTARIO TAX 6 CENTS

CHATHAM, Ontario, Mar. 18.—The provincial budget, brought down last week, provided for an increase of the gasoline tax to 6 cents per imperial gallon, the previous figure being 5 cents. The increased tax is now in force.

OPEN BRANCH OFFICE

HOUSTON, Tex., Mar. 21.—Cooper-Keller Oil Co., marketer of petroleum products with headquarters at Houston, has opened a branch office at 1203 Foshay Tower, Minneapolis, Minn., which will handle all business in the northwest territory.

B. D. Cooper, who has been at the Houston headquarters, has moved to Minneapolis to have charge of that office. Also, R. D. Dawson, formerly connected with the Great West Refining Co., will be connected with the sales department.

Oils Supported on General Price Break

Position of Petroleum Stocks More Favorable Than Other Groups. Ohio Oil Supported. Price Increase Possibility Interests Operators

By A. E. Mockler

NEW YORK, Mar. 21.—Oils were well supported during the general price break in the past week, and while leaders on both the Curb and Stock Exchange eased off somewhat, the declines in oils were much less severe than was the case with leading issues in other groups.

Considerable buying has come into the market on a number of the dividend payers in the oil group, as well as some of the stronger companies not at the moment on a dividend basis. Ohio Oil is reported to be receiving pool support, and has been fairly active. A statement by the company's president this week pointed out that first quarter earnings this year will be considerably in excess of preferred dividend requirements.

Leading independents are attracting some support, largely on the expectation that a tariff will be imposed on oil imports, resulting in higher refined products prices in domestic markets. There are favorable factors, aside from the tariff outlook, however, and it is felt that the extremely bearish 1931 earning statements now coming out mark a definite turning point in the earning position of the oil industry.

Prairie Stock Exchange

Prairie Oil & Gas Co. and Prairie Pipe Line Co. have notified stockholders that on and after March 31 they may exchange their holdings for shares in Consolidated Oil Corp., the company representing the merger of the Prairie companies with Sinclair Consolidated Oil Corp. Both companies state that their books will be closed for the exchange on March 25. Scrip, which will be issued for fractional shares, may be turned in for exchange when they equal one or more complete shares in the new company. The exchange will be on the basis of one share of Prairie Oil for one share of Consolidated and one and four-tenths shares of Consolidated for each share of Prairie Pipe.

Cities Service

Cities Service Co. reports for February net to common stock and reserves amounting to $1,713,838, compared with $1,630,192 for the corresponding month of 1931. Gross revenues were $3,447,513, against $3,469,531, and operating expenses $183,750, against $210,032.

Gulf Oil

Gulf Oil Corp. reports for 1931 net loss of $23,670,052, compared with net income of $10,625,252, or $2.35 a share on the common, in the previous year. Gross operating income during 1931 was $196,057,450, a sharp drop from the $257,199,650 received in 1930.

An inventory write-off of $11,958,086 accounted for nearly half of the 1931 deficit. This amount, however, was less than the $17,149,985 inventory markdown at the close of 1930. Operating profits of $22,328,335 for 1931 compared with $55,856,149 for this item in 1930. Approximately $1,500,000 more was written off for depreciation, depletion, etc., than in 1930.

Valvoline

Valvoline Oil Co. and subsidiaries (inclusive of Galena Oil from date of acquisition, September 22) report for 1931 net loss of $311,205 after charges and depreciation, against net profit of $266,484 after charges in 1930.

Ryan Consolidated

Ryan Consolidated Petroleum Corp. reports for 1931 net loss of $17,844 after expenses, but before other charges, comparing with net profit of $229,708 in 1930.

Humble Oil

Humble Oil & Refining Co. reports for 1931 net earnings of $2,165,092, equal to 92 cents a share, compared with $18,088,491, or $6.08 per share, in 1930. After payment of $5,926,726 in dividends in 1931 the deficit was $3,161,634, which was deducted from the surplus.

Union Tank Car

Union Tank Car Co. reports for 1931 net earnings of $1,872,948 after depreciation, interest, federal taxes and other charges, equal to $1.49 a share, against $2,540,000, or $2.03 a share, in 1930.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Sept. 9	20.28	Dec. 16	12.80
Sept. 16	18.30	Dec. 23	12.06
Sept. 23	17.64	Dec. 30	12.31
Sept. 30	15.83	Jan. 6	12.69
Oct. 7	15.83	Jan. 13	13.62
Oct. 14	16.43	Jan. 20	13.14
Oct. 21	17.58	Jan. 27	12.79
Oct. 28	16.80	Feb. 3	13.19
Nov. 4	18.86	Feb. 10	12.02
Nov. 11	18.76	Feb. 17	13.28
Nov. 18	17.60	Feb. 24	13.45
Nov. 25	16.68	Mar. 2	13.61
Dec. 2	16.09	Mar. 9	14.38
Dec. 9	15.38	Mar. 16	13.00

California Petroleum

California Petroleum Corp. and subsidiaries (controlled by The Texas Corporation) reports for the year ended December 31, 1931, net loss of $712,048 after taxes, intangible development costs, depreciation, depletion, interest and other charges. This compares with net profit of $3,118,702, or $1.51 a share on the common, in 1930.

Continental Oil

Continental Oil Co. reports for 1931

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending March 12)

1932 High	1932 Low	Week ending Mar. 12 Sales	Week ending Mar. 12 High	Week ending Mar. 12 Low	Close Mar. 16	Stocks		Outstanding capital	Par value	Div. rate	Payable or last paid	1929 High	1929 Low	1930 High	1930 Low	1931 High	1931 Low
½	¼	3,200	⅜	⅜	⅜	American Maracaibo	(sh)	700,000	N.P.	....	.....	8⅝	1⅛	4½	½	1¾	¼
2¾	2	300	2⅛	2⅛	2	Arkansas Natural Gas	(sh)	4,084,235	N.P.	....	.....	26	3⅜	16¾	4⅝	6½	1⅞
2⅝	1⅞	4,700	2¼	2	2	Arkansas Natural Gas "A"	(sh)	3,522,521	N.P.	....	.....	24¾	6½	16⅝	4⅝	6¾	1⅞
5½	4⅝	200	5	5	..	Arkansas Natural Gas pfd.	(sh)	2,193,000	$10	....	7- 1-31	9	4	8⅛	6¼	7	3⅛
9¾	8½	300	9¾	9¾	..	British American Oil Corp.	(sh)	2,622,642	N.P.	20cQ	10- 1-31	62	7⅞	23	13⅜	16⅞	6¼
⅝	¼	500	½	⅜	..	Carib Syndicate		$131,250	25c	....	.....	4⅞	1	2¾	⅝	2⅜	¼
6⅞	5¼	38,200	6⅝	6⅛	6	Cities Service	(sh)	24,290,359	N.P.	30cA§	2- 1-32	68⅛	20	44¼	13	20¾	5
53⅜	44¼	1,100	53⅜	51⅜	52	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	2- 1-32	98¾	84	93⅞	78¼	84¾	35⅜
1⅞	1⅛	1,100	1¼	1¼	1⅛	Columbia Oil & Gasoline v.t.c.	(sh)	$2,000,000	$1	....	.....	2	½	¾	⅛	½	⅛
⅛	⅛	100	⅛	⅛	..	Colombia Syndicate		3,250,000	N.P.	....	.....	..	..	21	3⅜	7⅛	1
⅝	⅜	600	⅝	½	..	Colon Oil	(sh)	2,200,000	N.P.	....	.....	15	3⅞	8¼	1⅛	3⅛	¼
7	5⅝	16,300	7	6½	6⅛	Consolidated Oil Corp. w.i.	(sh)	14,190,000	N.P.	....	.....	..	..	..	..	..	..
1	1	No sales	..	..	..	Consolidated Royal		$5,527,875	$10	5cQ	1-25-32	11⅛	2½	5⅞	2	2¾	1
1	½	1,700	1	¾	⅝	Cosden Oil	(sh)	323,950	N.P.	....	.....	135	42	74¾	1¼	3¾	⅜
2⅛	1⅝	1,200	2	2	2	Darby Petroleum (new)		1,019,392	N.P.	....	10-15-30	26	6½	21¾	4¼	5	1¾
2⅛	1½	1,100	2	1⅝	1¾	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	11	2	11	2	6	1½
24½	20	No sales	..	..	..	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	44	20¾	60	30	40⅛	25
32¼	25⅜	8,400	32¼	29	27	Gulf Oil Corp.	(sh)	4,504,921	$25	....	10- 1-31	209	115	166⅞	58½	75½	25⅜
4½	4	200	4	4	..	Indian Terr. Oil "B"	(sh)	7,090,037	N.P.	....	.....	..	..	53½	12⅝	16⅞	5
¼	⅛	2,300	⅛	⅛	..	Intercontinental Petroleum		$5,682,000	$5	....	.....	2⅞	⅜	1¾	⅝	⅝	⅛
⅝	⅜	No sales	..	..	½	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3⅝	1¼	3	⅞	1⅞	¼
½	¼	No sales	..	..	..	Leonard Oil & Development		$50,000,000	$25	....	.....	14⅞	2½	5	¾	2	½
⅞	⅛	No sales	..	..	..	La. Land & Exp.	(sh)	3,000,000	N.P.	....	.....	6⅛	1	4¾	½	1½	¼
2⅛	1⅝	No sales	..	..	..	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	38⅞	18	29	4⅞	6¾	1½
9¼	6⅝	3,800	7	6⅝	6⅝	Lone Star Gas	(sh)	5,000,000	N.P.	15cQ	3-31-32	67⅞	28	55⅞	19⅝	25	5½
⅛	⅛	16,100	⅛	⅛	⅛	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1¼	½	½	⅛	½	¼
6⅛	3¾	400	6⅛	6	6	Margay Oil Corp.		160,000	N.P.	25cQ	4-21-32	38½	14	16	3	5	1⅞
5¼	4½	1,000	5¼	4⅞	..	Memphis Natural Gas	(sh)	920,000	N.P.	15cQ	1-15-32	24	8⅛	22¼	7½	12⅛	4½
2	2	No sales	..	..	..	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	6⅜	2¼	7½	1¾	4⅞	1½
..	..	No sales	..	..	..	Mountain & Gulf		$4,000,000	$1	....	4-15-31	1½	½	¾	⅜	½	⅛
3	2¼	800	2⅞	2⅝	2½	Mountain Producers		$1,682,182	$10	20cQ	1- 2-32	22⅞	7	12⅛	3¾	5⅞	2
13½	11	2,200	13⅜	12⅝	12½	National Fuel Gas	(sh)	3,810,183	N.P.	25cQ	1-15-32	43⅞	23	41⅜	19⅜	26½	9¾
¾	⅜	200	¾	¾	⅝	New Bradford Oil		$1,095,291	$5	....	4-15-31	5	2½	3½	1⅛	1½	½
⅞	½	100	⅞	⅞	¾	New Mexico and Arizona		$1,000,000	$1	....	.....	9⅜	2¼	7¼	1½	3	¾
1	⅝	No sales	..	..	..	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	18½	6⅛	11¼	2⅛	3¼	⅝
⅜	¼	500	¼	¼	¼	North European Oil	(sh)	1,372,391	N.P.	....	.....	..	..	6¼	⅝	2⅛	¼
6¼	4⅛	300	4¾	4⅜	..	Pacific Western Oil	(sh)	1,000,000	N.P.	....	.....	26⅝	12⅛	19½	5½	15	2⅞
⅛	⅛	100	⅛	⅛	..	Pandem	(sh)	489,875	N.P.	....	.....	3½	½	2½	¼	½	⅛
½	¼	100	⅜	⅜	..	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	10½	1⅞	4⅜	⅞	2	⅜
7½	6⅛	4,000	7⅜	6⅞	..	Plymouth Oil	(sh)	1,050,000	$5	25cQ	12-21-31	37	22	27½	16¼	19	6
½	⅜	2,100	½	½	½	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	8½	1⅛	5⅜	1	3⅛	¼
1	½	No sales	..	..	..	Richfield Oil pfd. x.w.	(sh)	399,950	$25	....	.....	31½	22	23½	6½	11	¼
1	⅞	No sales	..	..	..	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	11	2	8⅝	2	3	¾
⅝	⅛	No sales	..	..	..	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	5⅞	1⅞	2½	½	1⅜	⅛
4⅛	3⅛	400	4⅛	4	3⅞	Salt Creek Producers	(sh)	1,496,859	$10	25c	2- 1-32	25⅞	9	15¼	5¼	7¾	2¾
½	¼	700	⅞	⅞	⅝	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	12	5⅝	10	2	5¼	¼
6⅝	5½	500	6⅝	6	..	Texon Oil & Land	(sh)	936,036	N.P.	....	3-31-31	23	7⅛	19½	8	12⅞	2½
½	⅜	4,600	⅝	⅝	⅝	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	6½	1¾	4½	⅜	1⅞	¼
2	1½	No sales	..	..	..	Woodley Petroleum		$500,000	$1	....	3-31-29	9½	2	5	½	3½	1⅛
½	⅛	3,200	½	¼	¼	Y Oil & Gas		100,000	N.P.	....	.....	2⅞	½	2½	⅝	2¼	¼

*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and monthly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend of 2 per cent.

net loss of $12,045,575 after taxes, interest, depreciation, depletion, intangible drilling costs and other charges, but before extraordinary items. This compares with net profit of $255,598 in 1930.

After provision for loss on investment in the Sealand Petroleum Co. and profit on sale of assets and investments, the net deficit of Continental Oil for 1931 was $10,683,313.

Ohio Oil

Ohio Oil Co. and subsidiaries report for 1931 consolidated net loss of $5,182,260 after charges and taxes, but before inventory adjustments and adjustment of fixed assets. This compares with consolidated net income of $10,630,015, after charges and taxes, in 1930.

Columbia Gas

Columbia Gas & Electric Corp. and subsidiaries report for 1931 consolidated net income of $22,331,888, after all interest and depreciation charges. After deducting dividends on the preferred stock of Columbia Gas & Electric Corp., the balance applicable to the common stock equaled $1.42 a share, against $1.76 a share in 1930. Total gross revenues for 1931 were $89,904,033, against $96,129,806 in 1930. Operating expenses were reduced during the year by $4,-

(Continued on Page 89)

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending March 12)

1932 High	1932 Low	Week ending Mar. 12 Sales	Week ending Mar. 12 High	Week ending Mar. 12 Low	Close Mar.16	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1929 High	1929 Low	1930 High	1930 Low	1931 High	1931 Low
..	..	No sales	..	..	..	Atlantic Lobos		499,448	N.P.	....	5-28-30	..	..	1	¼	1	⅛
6¼	6	No sales	..	..	..	Borne Scrymser		$1,000,000	$25	....	10-15-30	46½	25	25	11¾	16	6
35	30½	200	32	30⅝	..	Buckeye Pipe Line		$10,000,000	$50	$1Q	3-15-32	74½	55	69	39⅞	56	30
90	75	100	90	90	..	Chesebrough Mfg.		$3,000,000	$25	$1Q‡	12-30-31	210	130	184⅞	104¼	129½	75
2⅝	1¾	3,700	2⅝	2¼	2¼	Creole Petroleum	(sh)	5,977,872	N.P.	....	.....	11¾	5⅜	7⅞	3	3⅞	1⅝
32	23	No sales	..	..	..	Eureka Pipe Line		$5,000,000	$100	$1Q	2- 1-32	70½	40	54¾	26	36	19
49	42⅜	3,900	49	46½	..	Humble Oil & Refining		$74,103,300	$25	50cQ	4- 1-32	128	74⅛	119	57¼	72	44¼
9½	7⅝	2,900	9½	9⅛	8⅝	Imperial Oil of Canada (new)	(sh)	25,421,768	N.P.	12½cQ	12- 1-31	41	22	30	15	18¼	7⅜
7½	6½	100	7¼	7¼	..	Indiana Pipe Line (new)		$3,000,000	$10	25cQ	2-15-32	41⅞	26	41	14½	21⅛	5½
10½	8¾	9,300	10½	10	10	International Petroleum (new)	(sh)	14,247,088	N.P.	25cQ	3-15-32	30¾	15	24	11⅜	15½	7⅜
10½	6⅞	300	10½	10	10½	National Transit		$6,362,500	$12.50	25cQ	3-15-32	25⅛	10⅛	22⅜	11½	17½	5
4	3	100	3¾	3¾	..	New York Transit		$500,000	$5	10cQ	4-15-32	17½	10	21⅜	10⅛	14½	5⅞
4¾	3¾	400	4¼	4¼	..	Northern Pipe Line		$2,000,000	$50	$2SA	1- 2-32	63	41	54	26¼	35½	20
6⅞	5⅛	100	6⅞	6⅞	..	Penn Mex Fuel		$10,000,000	$25	50c	10-31-31	44½	20	32	12	15½	5½
14½	9⅝	13,700	14½	13⅝	..	South Penn Oil		$30,000,000	$25	25cQ	12-31-31	60¼	35⅛	45⅞	16⅛	23⅞	9¼
10	8	No sales	..	..	..	Southern Pipe Line		$1,000,000	$10	50cQ	3- 1-32	22½	13	20⅞	8⅜	17	7
37	32	No sales	..	..	..	Southwest Pennsylvania Pipe Line		$1,750,000	$50	$1Q	4- 1-32	70	60	64	32	42½	25
17¼	14	55,400	17¼	16⅜	16¼	Standard Oil of Indiana		$348,175,069	$25	25cQ	3-15-32	63	45	59⅞	30	38½	13½
15⅞	12	4,800	15⅞	14¾	14⅛	Standard Oil of Kentucky		$25,654,516	$10	40cQ	3-31-32	46⅞	29	40½	18⅝	23⅝	12⅛
19	15¾	300	18½	18⅜	18¼	Standard Oil of Nebraska		$4,649,225	$25	50cQ	3-21-32	50¼	40	48⅞	34⅝	36½	16
28¼	23¾	1,500	27¾	27	..	Standard Oil of Ohio		$14,000,000	$25	62½cQ	1- 2-32	129	60	108½	43¼	62½	23
..	..	No sales	..	..	..	Swan-Finch Co.	(sh)	34,480	$25	....	1-15-29	18	10	10	4	4½	1

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending March 12)

1932 High	1932 Low	Week ending Mar. 12 Sales	Week ending Mar. 12 High	Week ending Mar. 12 Low	Close Mar.16	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1929 High	1929 Low	1930 High	1930 Low	1931 High	1931 Low
14¾	12•	2,000	14¾	14	14½	Amerada Corp.	(sh)	922,075	P.N.	50cQ	1-30-32	42⅝	17½	31½	16½	23	11¼
4	1¾	1,000	2¾	2½	1	American Republics Corp.	(sh)	209,180	N.P.	....	12-31-30	64¾	12½	37	5⅛	12⅜	1¼
9¾	7¼	220	8¾	8	..	Associated Oil		$57,260,300	$25	....	6-30-31	47¼	34½	51	30	31	8¾
12⅞	8⅝	38,800	12⅞	11⅝	11½	Atlantic Refining		$67,416,050	$25	25cQ	3-15-32	77⅞	30	51⅜	16⅝	23⅝	8⅝
5⅞	4	13,900	5⅝	4⅝	4½	Barnsdall Corp. A		$56,546,600	$25	....	5-11-31	49⅛	20	34	8⅝	14½	4
16⅛	11⅞	74,550	16⅛	14¼	13¾	Columbia Gas & El.	(sh)	11,684,220	N.P.	37½cQ	2-13-32	140	52	87	30⅝	45⅝	11⅝
10½	9	1,500	10½	10	..	Colonial Beacon Oil	(sh)	1,444,970	N.P.	....	12-22-22	32⅞	12½	20⅜	8¾	10½	7½
7	5⅝	42,900	7	6¼	6⅛	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	47⅞	18	30½	7¾	12	5
35¾	28	21,300	35¾	33⅛	31½	General American Tank Car	(sh)	811,647	N.P.	$1Q	1- 1-32	123¾	75	111⅞	53⅛	73⅛	28
15½	11	5,200	14	12¼	11½	General Asphalt	(sh)	413,333	N.P.	50cQ	3-15-32	94¾	42¼	71½	22⅜	47	9⅝
24⅜	16⅛	16,300	24⅜	21½	19⅝	Houston Oil		$24,968,600	$100	....	10-17-30	109	26	116⅞	29¼	68½	15¾
1⅝	1¼	100	1½	1½	..	Indian Refining		$12,564,070	$10	....	10- 1-30	53	13⅛	17	2	4⅝	1⅛
1⅝	1	2,000	1⅝	1¼	1¼	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	18	7	12	3½	4½	1
⅞	⅝	100	⅝	⅝	¾	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	18½	5⅛	10⅜	1⅝	3¾	½
6½	5¼	6,800	6¾	5¾	5½	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	39⅞	22⅛	32	11	16¾	5
9¼	6	700	9	8	..	National Supply of Delaware	(sh)	390,879	$50	....	5-15-31	144	98½	124¾	60	70¼	5
7⅜	5	122,000	7⅜	6	6⅜	Ohio Oil	(sh)	6,648,052	N.P.	....	3-14-31	79⅞	64¼	32	16	19½	5⅛
..	..	No sales	..	..	..	Pan American P. & T.		$50,084,700	$50	40c	1-20-32	69	40½	46½	42	35⅛	20
19	16	200	17¼	17¼	..	Pan American P. & T. "B"		$121,110,650	$50	40c	1-20-32	69¼	40½	67¼	30	36½	18
1¼	½	300	1	⅞	..	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	15¼	3	12¾	1¾	4¼	⅝
6½	4	22,805	6½	5½	5½	Phillips Petroleum	(sh)	2,593,075	N.P.	....	1- 2-31	47	24¼	44⅝	11½	16⅝	4
½	¼	1,600	½	⅜	⅜	Pierce Oil Corp.		$29,622,831	$25	....	.....	3⅜	1	2½	½	1½	¼
1⅛	⅝	6,400	1⅛	⅞	⅞	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	5⅞	½	7⅛	1⅛	3⅜	½
7⅛	4½	28,300	7⅛	6¼	6	Prairie Oil & Gas		$60,848,000	$25	....	3-31-31	65⅜	40½	54	11¼	20⅜	4⅛
9¾	6⅛	33,500	9¾	8½	8¼	Prairie Pipe Line		$101,250,000	$25	....	6-30-31	65	45	60	16⅝	26½	5⅞
1⅝	1	1,800	1⅝	1¼	..	Producers & Refiners		$37,438,950	$50	..	9-15-23	25⅞	4	11⅞	1	6	1
9	3⅛	250	9	8¾	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	46¾	25½	40	11½	16	3
5⅛	3⅞	10,500	5⅛	4⅜	4½	Pure Oil		$75,959,250	$25	....	9- 1-30	30¾	20	27¼	7⅝	11⅞	3¼
¾	½	1,100	¾	¾	..	Richfield Oil (new)		$52,410,875	N.P.	....	.....	49⅝	20	9¾	4⅛	6⅜	⅜
2¾	2	800	2¾	2¼	2⅛	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	42½	15	25¾	5	10¼	1¼
23	13⅜	6,500	21⅝	20½	19¼	Royal Dutch N. Y.	(sh)	611,303	....	$0.938	8- 4-31	64	43⅛	56½	36⅞	42⅝	13
9⅞	6¾	53,900	9⅞	8¼	8	Seaboard Oil of Delaware	(sh)	1,244,383	N.P.	....	10- 1-24	59⅜	8¼	37	9¾	20¾	5½
15¾	8½	No sales	..	..	..	Shell Transport & Trading Co.		£23,985,000	£1	$0.726	7- 6-31	51½	40⅝	48⅜	26	34	5
4⅛	2¾	7,470	4⅛	3⅝	3⅝	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	31¾	19	25½	5¼	10¼	2½
31	19	1,600	31	24¾	25¼	Shell Union Oil pfd.	(sh)	400,000	$100	....	7- 1-31	108¼	93	106¼	55	78	15
6	4⅝	13,600	6	5	4¾	Simms Petroleum		$8,353,620	$20	....	9-15-30	40⅛	15	37	5⅝	11	3½
7⅛	4¼	133,000	7⅛	6⅛	5⅞	Sinclair Consolidated	(sh)	5,500,000	N.P.	....	4-15-31	45	21	32	9¾	15⅞	4⅛
89	79	No sales	..	..	87	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	2-15-32	111	103	112¼	86	103	64
4½	2½	3,800	4½	3½	3½	Skelly Oil		$27,441,250	$25	....	12-15-30	40½	28	12	10⅛	12⅞	2
19	12	300	19	17¾	18¾	Skelly Oil pfd.	(sh)	119,800	$100	....	5- 1-31	..	..	99¾	42	62	10
10⅜	8¾	182,900	10⅝	10	9⅞	Socony-Vacuum	(sh)	31,923,072	$25	25c	3-15-32	..	..	106⅜	98	106	87⅛
91½	84¾	800	89½	88	90¼	Standard Oil Export pfd.	(sh)	764,885	$100	$2.50SA.	12-31-31	..	..	..	..	21	8⅜
27¼	22½	34,100	27¼	25¾	25¼	Standard of California	(sh)	12,594,098	N.P.	50cQ	3-15-32	81⅞	51½	75	42½	51¾	23⅛
12¾	8½	700	10¼	8½	..	Standard of Kansas		$8,000,000	$25	....	3-16-31	33¾	18	49	14⅜	19	7¾
31½	25⅜	87,400	31½	29¾	28⅞	Standard Oil of New Jersey		$634,999,200	$25	25cQ§	3-15-32	83	49	84⅞	32½	52½	26
32	27⅜	100	32	32	30	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-15-31	68⅜	55	70	39	45¼	26¾
⅝	¼	900	½	⅜	..	Superior Oil Corp.	(sh)	766,979	N.P.	....	12-20-30	24	5¼	9⅜	¾	1⅜	¼
13⅞	10	38,300	13½	12⅛	11¾	The Texas Corporation		$246,204,900	$25	25cQ	4- 1-32	71⅞	50	60½	28¼	36¼	9⅞
2¾	1⅞	1,000	2⅜	2⅛	..	Texas Pacific Coal & Oil Co.		$9,304,890	$10	....	12-31-29	23⅞	9½	14½	4	6½	1⅞
8	8	200	8	8	..	Tide Water Oil	(sh)	2,191,759	N.P.	25cQ	4- 1-32	40	14	31	13	18	9⅞
41	30	400	41	35	37½	Tide Water Oil pfd.	(sh)	19,947,000	N.P.	$1.25Q	2-15-32	97½	85⅛	94⅞	71	83	30
3½	2⅜	34,300	3⅛	2½	2½	Tide Water Associated	(sh)	5,560,424	N.P.	....	2-16-31	23½	10	17¾	5⅞	9	2⅛
28	20	1,500	28	23	27¾	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	1- 2-32	90⅞	74⅛	89¾	55	68	20½
13¾	10¾	6,800	13¾	12⅝	12½	Union Oil of California		$104,342,375	$25	35cQ	2-10-32	57	42⅛	50	10⅛	26⅝	11
19¼	15	15,300	19¼	17¾	16	Union Tank Car	(sh)	1,254,048	$100	40cQ	3- 1-32	163¾	121⅞	38½	23	25⅛	16
1½	1	700	1½	1⅛	..	Warner-Quinlan	(sh)	632.948	N.P.	....	7- 1-30	42⅞	15	27	4¼	7⅜	⅞
5¾	3¼	6,500	5¾	4⅝	4⅝	Wilcox Oil & Gas	(sh)	428,907	$5	....	5-10-28	29¾	12⅞	21	6½	9⅜	2¾

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus extra dividend of 25 cents.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

DANGEROUS GASES IN THE OIL INDUSTRY

(Continued from Page 13)

mixed with air, and have higher rates of flame propagation. Water gas, coke-producer gas and blast-furnace gas are poisonous because of the very high carbon monoxide content, sometimes as much as 40 per cent. Workmen around blast furnaces, gas producers and other gas-manufacturing equipment should never enter tanks, tunnels or other enclosed or semienclosed places which may contain gas without respiratory protection, such as hose masks leading to the outside air, or self-contained oxygen breathing apparatus, unless the absence of this gas has been definitely shown by suitable tests.

The poisonous character of carbon monoxide is due to the fact that it excludes oxygen from the hemoglobin of the blood because of its direct combination with the hemoglobin. It does not injure the corpuscles and they will function normally after the carbon monoxide has been replaced by oxygen, but while the carbon monoxide is in the blood they are incapable of normal action and consequently causes asphyxiation, which, if the concentration is high enough, will end in death. The reason for this kind of combination is that carbon monoxide has a much stronger affinity for hemoglobin than oxygen, the relative rate being approximately 300 to 1. The rate of carbon monoxide absorption depends upon the size of the lungs. That is, the volume of air breathed, so that small persons and children are overcome more quickly than adults or persons having a large air capacity.

A concentration of 1,500 to 2,000 parts of carbon monoxide per million is considered dangerous for an exposure of one hour and concentrations above 4,000 parts may be fatal in exposures of less than an hour.

Sulphur Dioxide

Sulphur dioxide, SO_2, is a colorless gas with a penetrating pungent odor, more than twice as heavy as air, specific gravity 2.23, so any large quantity released into a still atmosphere will flow close to the ground. It is a product of combustion when sulphur or any fuel containing sulphur or sulphides is burned and is the chief irritant present in flue gases when natural gas or any gas containing hydrogen sulphide is used as the fuel, also it is usually present in the gas from burning coal, because of the presence of sulphides in the coal. It is formed when treating lubricating oils with sulphuric acid.

Sulphur dioxide is easily liquefied, in which form it is used as a treating agent for the purification of gasoline, naphtha, kerosene and lubricating oil. The common practice for handling sulphur dioxide is in cylinders, from which the gas is released to the system. The gas sometimes escapes from the cylinders or through faulty connections.

This gas combines with the moisture and oxygen of the air to form sulphuric acid, consequently is corrosive and destructive. It is so irritating to the eyes and breathing organs that large quantities are difficult to take into the system and therefore there are very few cases of actual poisoning by sulphur dioxide. The maximum concentration that may be breathed during short exposure, one-half to one hour, is 150 to 100 parts per million of air. Quantities of 400 to 500 parts per million are dangerous for any exposure.

The treatment for a person suffering from an overexposure to sulphur dioxide is to administer a weak solution of an alkali, such as sodium bicarbonate (baking soda), lime water and small quantities of ammonia in water. Soothing applications of butter, lard or oils may be used. Induce breathing as under asphyxia.

The determination of the quantity of carbon monoxide present in the products of combustion is important as a criterion of the completeness of combustion and of the safe operation of gas appliances. The apparatus for this purpose is the U. S. Bureau of Standards modification of one designed and used by the Chemical Warfare Service during the World War. The method is based on the reaction of carbon monoxide and iodine pentoxide which results in the liberation of iodine and the formation of carbon dioxide. The liberated iodine is absorbed in a 10 per cent solution of potassium iodine and the quantity determined by titration with standardized sodium thiosulphate. As the quantity of liberated iodine and the volume of gas passed through the apparatus are known, the quantity of carbon monoxide in the products of combustion may be calculated. Because the samples usually contain various quantities of excess air it is necessary to compute the results to an air-free basis in order to compare various tests. The quantity of excess air may be judged by determining free oxygen, but it is usually more convenient in routine work to determine the quantity of carbon dioxide and the total volume of products, including nitrogen, formed by the combustion of a unit volume of gas, and subsequently determine only carbon monoxide and carbon dioxide in the samples tested.

Ammonia

Ammonia, NH_3, is a colorless gas with a well known pungent odor. The specific gravity of the gas is 0.597, or about half as heavy as air. It is a decomposition product of nitrogenous substances. Large quantities are derived from coal in the coking process and some ammonia is formed when making petroleum coke. An important source is from the nitrogen of the atmosphere.

The use of ammonia in petroleum refining is confined to refrigerating units, a neutralizing agent for hydrochloric acid and hydrogen sulphide evolved when distilling oil, also to a limited extent, in connection with the treating of distillates and lubricating oils. Ammonia is purchased for these several uses either in the anhydrous form in steel cylinders or the concentrated water solution, ammonium hydroxide. The gas expands rapidly upon the application of heat, so cylinders containing ammonia should not be stored in a warm place or where they may be exposed to the direct rays of the sun. The breaking of valves and the explosion of cylinders are the ordinary sources of quantities dangerous to persons.

The pungent odor may be detected when present between 50/60 parts per 1,000,000. Quantities up to 500 parts per 1,000,000 may be breathed for one-half to one hour without serious consequences. Concentrations between 2,500 and 5,000 parts per 1,000,000 are dangerous for short exposure, and over 5,000 parts are rapidly fatal for even brief exposure.

Ammonia acts only on the upper respiratory tract but sudden inhalations may produce a shock resulting in complete stoppage of heart action and respiration. The first effects are irritation of the nose and throat followed by irritation of the eyes, then coughing and difficulty in breathing.

Ammonia is easily detected by the sense of smell, so quantitative chemical analyses are not necessary for this purpose.

Chlorine

Chlorine is a greenish yellow gas nearly 2.5 times as heavy as air, specific gravity 2.47. It is used in the industry mostly in the liquid form, being received in cylinders or tank cars, and to some extent combined with lime or sodium as the hypochlorite, for the treatment of gasoline. It is a powerful irritant poison acting upon the membranes of the eyes, nose and throat. A concentration of 40/50 parts per 1,000,000 is dangerous for a short exposure and 1,000 parts per 1,000,000 is rapidly fatal. Very small quantities, 3 to 4 parts per 1,000,000, are easily detected by the characteristic odor.

Mixtures of gasoline and chlorine react slowly in the absence of light but even if slightly warmed the reaction is sudden. The mixture may flash into incandescence with the separation of carbon and hydrochloric acid. Brooks demonstrated the explosive nature of such a mixture adding 82° A.P.I. gravity gasoline to chlorine in a cylinder, exploding the cylinder with terrific violence.

It is important that means be provided to prevent gasoline mixing with the chlorine; that is, the chlorine should always flow into the gasoline. Adequate safety traps should be set in the supply line and the chlorine cylinder disconnected from the system when not in use.

Acetylene

Acetylene, C_2H_2, specific gravity 0.6208, is used for welding and cutting, being supplied in cylinders under pressure as a solution in acetone. It is also prepared by the action of water on calcium carbide in special generators. Acetylene is a simple asphyxiant and anesthetic. Instances of persons overcome by inhaling acetylene in the petroleum industry are very rare; the treatment is the same as for asphyxia, described under the hydrocarbons.

The most serious property of acetylene is the explosive character of mixtures with air, the dangerous mixtures being of a wide range, from 3 to 73 per cent of acetylene. Acetylene should not be stored in cylinders without acetone, because acetylene alone and under pressure is readily exploded by a shock.

When acetylene is passed through an ammoniacal solution of a cuprous salt a red precipitate of the carbide is obtained. This is the common test for the gas.

Miscellaneous

Hydrogen, ozone and helium are gases of minor importance. The largest accumulation of hydrogen in the industry is in the hydrogenation process for the treatment of oil for the production of gasoline. It is a simple asphyxiant. Hydrogen burns in the presence of air to produce a very high temperature and forms an explosive mixture with 2.5 parts of air.

Ozone is formed in electrical generators and motors. It has a penetrating odor and is an active irritant.

Helium is found in some natural gas from which it is extracted for use as a lifting medium for aircraft of the dirigible type. It does not burn and will not form explosive mixtures when mixed with air. Its action in the human system is as a simple asphyxiant.

References

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CALIFORNIA CRUDE OIL PRICES

(Continued from Page 81)

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).
Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.
Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).
Montebello—65 cents for all grades (14° to 25.9°).
Whittier and LaHabra—65 cents for all grades (14° to 22.9°).
Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.
Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices effective June 20 are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills—The Associated Oil Co., effective at 7 a.m. February 5, 1932, withdrew and canceled any and all prices heretofore published and in effect for Kettleman Hills oil.

Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity which is 69 cents.

General Petroleum Co. in Kettleman Hills, effective January 1, 1932: 33-33.9 degrees, 66 cents; 34-34.9 degrees, 68 cents; 35-35.9 degrees, 70 cents; 36-36.9 degrees, 72 cents; 37-37.9 degrees, 74 cents; 38-38.9 degrees, 76 cents; 39-39.9 degrees, 78 cents.

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931
(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights Seal Beach	Huntington Beach	Athens, Rosecrans, Domingues	Torrance	Santa Fe Springs	Playa Del Rey* E. Coyote	Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Elk Hills, Midway, Buena Vista Hills	Gravity °A.P.I.
11-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.56	.59	.56	22-22.9
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.56	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	.. .	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	.. .	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	.. .	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.82	.. .	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

NO DOMINANT FIELD IN THE UNITED STATES

(Continued from Page 11)

nia; Tonkawa and Burbank, Oklahoma; Santa Fe Springs and Long Beach, California, and Powell, Texas, showed an average decline of 66 per cent one year after the peak, 72 per cent in two years and 80 per cent in three years. Wortham, Texas, declined 92 per cent in one year and 96 per cent in two years. The Smackover Field in Arkansas declined 68 per cent in one year and 78 per cent in two years, or from a peak of 415,200 bbls. to 89,700 bbls.

From the foregoing records it is easy to visualize what would become of the East Texas and Oklahoma City Fields or the Van, Yates and Hobbs Pools were they opened wide.

Estimates on East Texas

When it is considered that only 30 oil fields in the United States, out of the hundreds and hundreds of pools in 19 states, have produced 100,000,000 bbls. up to January 1 of this year, and only one field had produced more than a half billion barrels, it is easy to see why the claims made for the East Texas Field are the subject of so much controversy. Estimates on the total recovery of that field of 90,000 or more acres range all the way from 750,000,000 to more than 2,000,000,000 bbls., provided, however, that the field is developed according to the best modern engineering practices. This difference of a billion and a quarter barrels in high and low estimates is so great that it leaves the average oil man entirely at sea as to what to expect from the big area, but the average oil man believes from past experience that the actual production will be much nearer 750,000,000 bbls. than the higher figure of 2,000,000,000 bbls.

Forty-three fields in the country have produced a total of 7,593,354,552 bbls. of crude oil from 599,011 productive acres, an average of 12,676 bbls. to the acre. The seven and a half billion barrels of oil averages 28.6 degrees in gravity, ranging all the way from 15 gravity, as the average for Kern River, California, to 44 degrees, the average for Bradford, Pennsylvania-New York.

The Midway-Sunset Field of 41,000 acres leads, as it has done for years, with a total of 711,730,460 bbls. Only two other fields have produced more than 331,000,000 bbls., these having been Seminole with 461,202,737 bbls., an average of 18,522 bbls. per acre, and Long Beach, California, with 449,944,307 bbls., or an average of 272,694 bbls. per acre, the richest oil acreage in the United States.

Four additional fields have produced more than 300,000,000 bbls.: Coalinga and Santa Fe Springs in California, Cushing, Oklahoma, and Smackover, Arkansas; and four more have produced more than 200,000,000 bbls.: Kern River, California; Augusta-Eldorado (Butler County), Kansas; Bradford, Pennsylvania-New York, and Salt Creek, Wyoming. All the others listed have not yet reached the 200,000,000-bbl. mark. One field not listed because of the absence of authoritative figures on productive acreage and production per acre is the widely scattered Lima Field in northwestern Ohio, which includes numerous pools in a half dozen or more counties, all of which had produced 364,881,000 bbls. of crude oil since 1886. It is producing less than 3,200 bbls. per day at this time.

W. P. HASEMAN DIES

Dr. William P. Haseman, former head of the physics department at the University of Oklahoma, died recently at his home in Oklahoma City. He was 53. Doctor Haseman came to the Oklahoma school from the University of Indiana in 1909. In 1925 he became head of the research department of the Marland Oil Co.

F. J. BEDFORD DIES

DALLAS, Tex., Mar. 19.—Fred Jay Bedford, 63, chief engineer for the technical department of the Magnolia Petroleum Co., died Wednesday night at his Dallas home.

BENEFITS OF CURTAILMENT IN EAST TEXAS' BIG OIL FIELD

By James McIntyre

Mainly for the benefit of those interested financially in the past, present and future of the East Texas oil field, that they may not be misguided by the clamor of misinformed propagandists bent on throwing the field open, The Oil and Gas Journal runs a table of East Texas' estimated crude oil production and value by week for the year ending March 9, 1932. The figures show that in that year 124,348,273 bbls. of crude oil was produced in the East Texas Field, for which producers, royalty owners and the State of Texas received a total of $65,242,196.02 or an average of 52.5 cents per barrel. For the last half of the oil produced they have received an average of 77.8 cents per barrel and the first half an average of 27.2 cents per barrel. The 77.8-cent average has been received since Governor Sterling clamped down on the field with martial law—not for the purpose of increasing the price of oil, but for the purpose of maintaining order and carrying out the legalized policy of preventing physical waste in a field unusually susceptible to water intrusion.

CRUDE OIL PRODUCTION AND VALUE, EAST TEXAS FIELD
For Year Ending March 9, 1932

Week ending—	Estimated ave. daily prod. (bbls.)	Ave. price per bbl.	Prod. per week (bbls.)	Estimated value of oil produced
March 9	331,815	$0.82¾	2,322,705	$1,922,270.06
March 2	309,115	.82¾	2,163,805	1,790,548.64
February 24	304,127	.82¾	2,128,889	1,761,655.56
February 17	279,814	.82¾	1,958,698	1,620,822.60
February 10	327,113	.82¾	2,289,791	1,894,802.05
February 3	350,140	.82¾	2,450.980	2,028,185.95
January 27	343,950	.82½	2,407.650	1,986,521.63
January 20	333,819	.82½	2,336,733	1,927,804.73
January 13	333,415	.82½	2,333,905	1,925,471.63
January 6	330,110	.82½	2,310,770	1,906,385.25
December 30	291,246	.82½	2,038,722	1,681,945.65
December 23	311,691	.82¼	2,181,837	1,794,560.93
December 16	379,482	.82¼	2,656,374	2,184,867.62
December 9	389,416	.82¼	2.725.912	2,242,062.02
December 2	398,711	.82	2,790,977	2,288,601.14
November 25	387,249	.82	2,710,743	2,222,809.26
November 18	371,315	.82	2,599,205	2,131,348.10
November 11	410,376	.82	2,872,632	2,355,558.24
November 4	420,811	.67	2,945,677	1,973,603.59
October 28	416,947	.67	2,918,629	1,955,481.43
October 21	400,613	.67	2,804,291	1,878,874.97
October 14	387,514	.67	2,712,598	1,817,440.66
October 7	382,956	.67	2,680,692	1,796,063.64
September 30	362,268	.67	2,535,876	1,699,036.92
September 23	375,934	.67	2,631,538	1,763,130.46
September 16	347,215	.67	2,430,505	1,628,438.35
September 9	140,164	.66	981,148	647,557.68
September 2	144,276	.54	1,009,932	545,363.28
August 26	300,253	.36	2,101,771	756,637.56
August 19	760,579	.15	5,324,053	798,607.95
August 12	688,423	.13	4,818,961	626,464.93
August 5	627,579	.14	4,393,053	615,027.42
July 29	558,743	.15	3,911,201	586,680.15
July 22	434,296	.14	3,040,072	425,610.08
July 15	386,881	.14	2,708,167	379,143.38
July 8	364,518	.15	2,551,626	382,743.90
July 1	339,396	.17	2,375,772	403,881.24
June 24	341,397	.17	2,389,779	406,262.43
June 17	355,444	.23	2,488,108	572,264.84
June 10	281,850	.29	1,972,950	572,155.50
	39,116	.12	273,812	32,857.44
June 3	345,801	.31	2,420,607	750,388.17
May 27	300,110	.31	2,100,770	651,238.70
May 20	224,385	.31	1,570,695	486,915.45
	79,164	.65	554,148	360,196.20
May 13	215,395	.30	1,507,765	452,329.50
	53,851	.65	376,957	245,022.05
May 6	196,745	.29	1,377,215	399,392.36
	62,773	.65	439,411	285,617.15
April 29	191,962	.25	1,343,734	335,933.50
	99,885	.66	699.195	461,468.70
April 22	234,756	.39	1,643,292	640,883.88
	23,115	.65	161,805	105,173.25
April 15	179,601	.38	1,257,207	477,738.66
	23,996	.65	167,972	109,181.80
April 8	143,109	.42	1,001,763	420,740.46
	14,101	.65	98,707	64,159.55
April 1	124,429	.43	871,003	374,531.29
	14,000	.65	98,000	63,700.00
March 25	105,207	.43	736,449	316,673.07
March 18	71,437	.44	500.059	220,025.96
	20,140	.65	140,980	91,637.00
March 11	66,266	.44	463,862	204,099.28
	11,805	.65	82,635	53,712.75
		.524	124,348,273	$65,242,196.02

The whole thing is so plain that it is surprising that anyone would want to overproduce the East Texas Field. The owners—that is the producers and the royalty holders, together with the State of Texas—have a vast treasure in this field if it is handled carefully. If the field can produce 2,000,000 bbls. or 1,000,000 bbls. at an average of, say, 75 cents per barrel covering a period of years, why sell this oil for an average of, say, 35 cents per barrel in a shorter time?

If the Texas Railroad Commission should take it into its head that it would be safe to produce the field at the rate of, say, 450,000 bbls. a day the owners would be back where they were last summer with 15-cent oil, because side by side with the statute law for the prevention of physical waste, the natural law of supply and demand operates, and the more the field produces per day the lower will be the price per barrel.

Just now the field is rocking along with a weekly return in money around $1,900,000. For the same quantity of oil last summer the producer, royalty owner and State got less than $350,000.

The accompanying table tells its own story. It should be studied by every person interested in the field.

While the Texas law makes no provision for economic waste and the law of supply and demand, the Texas citizen is interested in financial return and therefore has a powerful incentive for favoring the curtailment of the production of the East Texas Field according to the conservation law. To him the Railroad Commission's action in keeping production down in order to exhaust the oil reservoir slowly and in good order, thus getting the greatest recovery possible in crude oil, resolves itself, so far as the oil man and royalty owner are concerned, into a dollars and cents proposition entirely outside the provision of the law.

To the producer and the royalty owner whose success or failure depends upon the law of supply and demand it is good business to keep the oil buyers competing for crude oil. When supply most exceeded demand the East Texas operator and royalty owner received from 13 cents per barrel up to 17 cents per barrel. When the field was clamped down in August from an average of 760,579 bbls. per day to around 300,000 bbls. per day up went the posted price per barrel. Early in September it rose to 68 cents per barrel and early in November to 83 cents per barrel. A relatively small quantity of oil, sold on old contracts under the market price, kept the average price in the field just under the posted price. At present it is estimated that the average price is 82¾ cents per barrel.

Here are some interesting comparisons: The biggest week's production recorded was in the week ending August 19, 1931, 5,324,053 bbls., for which producers and royalty owners received an average of 15 cents per barrel, or $798,607.95. The biggest return in money came in the week ending November 11, 1931, when 2,872,632 bbls. brought producers and royalty owners $2,355,558.24. Presenting this another way, in the week ending November 11 as compared with the week ending August 19, producers received $1,556,950.29 more money for 2,451,421 bbls. less oil, and the difference in oil was sold the next week at an average of 82 cents per barrel, so that for the same quantity of oil for which they received $798,607.95 in the week ending November 11, they received $4,365,723.46 in the period between November 11 and November 24. It took nearly twice as many days to produce the oil, but they received a bonus of $3,567,115.11 for waiting the few days.

D. C. GASOLINE TAX

WASHINGTON, D. C., Mar 21.—The District of Columbia Committee will hold hearings on the House bill increasing the gasoline tax from 2 to 4 cents a gallon in the District about April 1. The date of the hearing will be announced later.—C. E. K.

EAST TEXAS FIELDS

(Continued from Page 28)

duction 21 bbls. in one-half hour through tapered tubing, total depth 3,669 feet; No. 8 Richey, top sand 3,550 feet, initial production 25 bbls. in one-half hour through tapered tubing, total depth 3,599 feet.

Simms and Russ' No. 3 J. J. Flewellen, top sand 3,683 feet, initial production 300 bbls. per hour through open tubing, total depth 3,703 feet. E. L. Smith's No. 1 E. E. Anderson, top sand 3,609 feet, initial production 130 bbls. per hour through 1-inch tubing choke, total depth 3,703 feet. Sun Oil Co.'s No. 5 Satterwhite, top sand 3,566 feet, initial production 100 bbls. per hour through open tubing, total depth 3,601 feet.

Woodley Petroleum Co.'s No. 2 T. B. Harris, top sand 3,534 feet, initial production 100 bbls. per hour through open tubing, total depth 3,554 feet. Yount Lee Oil Co.'s No. 3 Calvin, top sand 3,598 feet, initial production 82 bbls. per hour through 1-inch tubing choke, total depth 3,618 feet.; No. 3 A. McCairy, top sand 3,560 feet, initial production 90 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,531 feet; No. 3 Pat Hopkins, top sand 3,507 feet, initial production 86 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 3,527 feet. Arkansas Fuel Oil Co.'s No. 2 Hughey-Ross, top sand 3,535 feet, initial production 49 bbls. in one-half hour through open tubing, total depth 3,563 feet. Atlantic and Byrd-Frost's No. 4 M. B. Hughey, top sand 3,590 feet, initial production 40 bbls. per hour through tapered tubing, total depth 3,587 feet.

Byrd-Frost Oil Co.'s No. 2 M. B. Hughey, top sand 3,590 feet, initial production 94 bbls. per hour through 2½-inch tubing choke, total depth 3,607 feet. Danciger Oil & Refining Co.'s No. 1 Bell, top sand 3,539 feet, initial production 7 bbls. per hour through open tubing, total depth 3,607 feet. Empire Gas & Fuel Oil Co.'s No. 1 Taylor, top sand 3,704 feet, initial production 35 bbls. in one-quarter hour through 2-inch tubing choke, total depth 3,712 feet. Gulf Production Co.'s No. 13 Hilburn, top sand 3,521 feet, initial production 65 bbls. per hour through three-quarters-inch tubing choke, total depth 3,535 feet.

H. R. Smith, Inc.'s No. 2 D. M. Peterson, top sand 3,528 feet, initial production 72 bbls. per day swabbing, total depth 3,639 feet. Humble Oil & Refining Co.'s No. 2 D. Thomas, top sand 3,542 feet, initial production 32 bbls. in one-half hour through open tubing, total depth 3,604 feet. T. D. Humphrey and others' No. 4 A. Spear, top sand 3,541 feet, initial production 75 bbls. per day pinched, total depth 3,580 feet. Invincible Oil Co.'s No. 2 Register, top sand 3,648 feet, initial production 20 bbls. in one-quarter hour through 2-inch tubing choke, total depth 3,663 feet. Silver Star Oil Co.'s No. 1 King, top sand 3,653 feet, initial production 65 bbls. per hour through open tubing, total depth 3,659 feet. Republic Production Co.'s No. 2 Clayton heirs, top sand 3,595 feet, initial production 75 bbls. in one-half hour through 1½-inch tubing choke, total depth 3,617 feet. John Droppleman's No. 1 L. Martin, top sand 3,705 feet, initial production 15 bbls. in 5 minutes through open tubing, total depth 3,709 feet.

Sells Petroleum Corp.'s No. 2 E. E. Sibley, top sand 3,570 feet, initial production 45 bbls. in one-quarter hour through three-quarters-inch tubing choke, total depth 3,603 feet. Shell Petroleum Corp.'s No. 2-B M. H. Bivins, top sand 3,614 feet, initial production 17 bbls. in one-half hour through tapered tubing, total depth 3,630 feet; No. 1 B. F. Laird, top sand 3,519 feet, initial production 11 bbls. in one-half hour through tapered tubing, total depth 3,543 feet. Sinclair Oil & Gas Co.'s No. 3 Joe E. Lawther, top sand 3,568 feet, initial production 45 bbls. in one-half hour through open tubing, total depth 3,585 feet. Solar Drilling Co.'s No. 1 Elder, top sand 3,558 feet, initial production 12 bbls. in one-quarter hour through three-quarters-inch tubing choke, total depth 3,580 feet. Stanolind Oil & Gas Co.'s No. 2 Clayton, top sand 3,530 feet, initial production 54 bbls. in 20 minutes through 2-inch tubing choke, total depth 3,594 feet. Sun Oil Co.'s No. 1 G. Reeves, top sand 3,655 feet, initial production 106 bbls. per hour through open 2-inch tubing, total depth 3,661 feet.

Tidal Oil Co.'s No. 7 M. G. Barton, top sand 3,544 feet, initial production 648 bbls per hour through tubing and one-third-inch line on casing, total depth 3,570 feet. Vance and Fagan's No. 1 Lewis Alexander, location abandoned. Weaver-Crim Corp.'s No. 9 Beno Laird, top sand 3,603 feet, initial production 40 bbls. in 20 minutes through open tubing, total depth 3,633 feet.

Hunt County

Branson and others' No. 1 Gray, location abandoned.

Lamar County

Optometrist Oil Club's No. 1 J. M. McFadden, temporarily abandoned, total depth 2,506 feet.

Nacogdoches County

G. A. Teague's No. 1 Morris, location abandoned.

Rains County

C. H. Bayliss' No. 1 Ownsby, dry and abandoned, total depth 4,036 feet.

Rusk County

East Texas Refining Co.'s No. 2 West Andy Givens, top sand 3,636 feet, initial production 75 bbls. per day pinched, total depth 3,650 feet. Everts Drilling Co.'s No. 2 C. O. Christian, top sand 3,760 feet, initial production 75 bbls. per day pinched, total depth 3,775 feet. Gulf Production Co.'s No. 7 Florence, top sand 3,615 feet, initial production 75 bbls. per hour through three-fourths-inch tubing choke, total depth 3,723 feet; No. 8 Florence, location abandoned; No. 1-A H. Sexton, top sand 3,625 feet, initial production 75 bbls. per hour through three-fourths-inch tubing choke, total depth 3,670 feet.

H. E. Heiden's No. 1 Varney, location abandoned. Republic Production Co.'s No. 4 J. H. Scroggins, top sand 3,682 feet, initial production 40 bbls. in one-half hour through 1½-inch tubing choke, total depth 3,692 feet. Sinclair Oil & Gas Co.'s No. 1-B Major Kennedy, top sand 3,647 feet, initial production 35 bbls. per hour through open casing, total depth 3,714 feet. Skelly and others' No. 1 I.&G.N., top sand 3,590 feet, initial production 75 bbls. per day pinched, total depth 3,638 feet.

Wheelock and Collins' No. 8 D. Wells, top sand 3,652 feet, initial production 100 bbls. per hour through open 2-inch tubing choke, total depth 3,677 feet. Golding and Murchinson's No. 8 Ida L. Kinney, top sand 3,594 feet, initial production 70 bbls. per hour through 2½-inch tubing choke, total depth 3,672 feet. Great Eastern Oil Co.'s No. 1 E. B. Alford, top sand 3,653 feet, initial production 30 bbls. per hour through tubing, total depth 3,741 feet. Gulf Production Co.'s No. 1 W. O. Alford, top sand 3,717 feet, initial production 30 bbls. per hour through open 2-inch tubing, total depth 3,722. Haynes Drilling Co.'s No. 5 Brown, top sand 3,706 feet, initial production 45 bbls. in one-half hour through open tubing, total depth 3,741 feet.

Humble Oil & Refining Co.'s No. 5 J. R. Box, top sand 3,726 feet, initial production 50 bbls. in one-half hour through three-fourths-inch tubing choke, total depth 3,787 feet; No. 4 C. A. Brightwell, top sand 3,669 feet, initial production 50 bbls. in one-half hour through three-quarters-inch tubing choke, total depth 3,733 feet. Gordon McMillian, Trustee's No. 2 M. A. Thrash, top sand 3,713 feet, initial production 45 bbls. in one-half hour. through open tubing, total depth 3,760 feet. Marvin H. McMurray's No. 3 Blackwell, top sand 3,655 feet, initial production 150 bbls. in one-fourth hour through open casing, total depth 3,677 feet. John Mabee's No. 3 Brett, top sand 3,690 feet, initial production no gauge, total depth 3,702 feet.

Mid-Kansas Oil & Gas Co.'s No. 1 H. B. Burton, top sand 3,619 feet, initial production 190 bbls. per hour through tubing one-fourth hour. Ortiz Oil Co.'s No. 3 H. M. Hale, top sand 3,617 feet, initial production 65 bbls. per hour through open tubing, total depth 3,727 feet. Sonbar's No. 4 Finney, top sand 3,630 feet, initial production 45 bbls. per hour through open tubing, total depth 3,716 feet. Stanolind Oil & Gas Co. and Pure Oil Co.'s No. 1 W. H. Siler, top sand 3,577 feet, initial production 180 bbls. per hour through 2½-inch tubing based on 15-minute gauge, total depth 3,612 feet. C. K. West, Trustee's No. 1 Jessie, Cole, top sand 3,768 feet, initial production 75 bbls. in one-half hour through open tubing, total depth 3,772 feet.

Smith County

K. O. T. Oil Co.'s No. 1 S. S. Cooke, top sand 3,733 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,737 feet. Pine Grove Oil Co.'s No. 1 S. S. Cooke, top sand 3,731 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,735 feet. Sinclair Oil & Gas Co.'s No. 9-A Jarvis, top sand 3,665 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,571 feet; No. 10 Dora Wright, top sand 3,740 feet, initial production 45 bbls. in one-fourth hour through open tubing, total depth 3,750 feet. Vitex Combined Oil Co.'s No. 1 Irion, dry and abandoned, total depth 1,200 feet. Yarber and others' No. 1 R. G. Wright, location abandoned.

Upshur County

Clarston and others' No. 1 Eva O'Byrne, top sand 3,634 feet, initial production 16 bbls. in one-fourth hour through 1-inch tubing choke, total depth 3,655 feet. East Texas Refining Co.'s No. 2 Doby Rodden, top sand 3,761 feet, initial production 98 bbls. in one-half hour through open tubing, total depth 3,769 feet. Shell Petroleum Corp's No. 2 L. Brawley, top sand 3,707 feet, initial production 15 bbls. in 50 cities through tapered tubing, total depth 3,716 feet.

Van Zandt County

Priest and others' No. 1 B. G. Beckham, temporarily abandoned, total depth 5,751 feet. Thomassen and others' No. 1 Mrs. Corley, dry and abandoned, total depth 3,225 feet. Pure Oil Co.'s No. 2 W. E. Morris, initial production 18 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 2,974 feet.; No. 10 F. B. Smith, initial production 145 bbls. per hour through eleven-sixteenths-inch tubing choke, total depth 2,919 feet; No. 1 B. Russell, dry and abandoned, total depth 2,993 feet.

DAILY AVERAGE CRUDE OIL SHIPMENTS FROM EAST TEXAS

Week ending March 17

Shipments Through Main Trunk Lines Company, size and location—	Bbls.
Arkansas P. L. Co., 8-in., Shreveport	8,677
Atlantic P. L. Co., 10-in., Atreco	14,283
Atlas P. L. Co., 8-in., Shreveport	3,505
Gulf P. L. Co., 2-8-in., Oklahoma	10,257
Gulf P. L. Co., 2-8-in., Port Arthur	20,715
Humble P. L. Co., 2-10-in., Shreveport	32,150
Humble P. L. Co., 2-8-in., Todd	35,196
Liberty P. L. Co., 8-in., Rusk	1,600
Magnolia P. L. Co., 10-in., Center	21,724
Magnolia P. L. Co., 12-in., Corsicana	26,546
Shell P. L. Corp., 10-in., Houston	19,856
Sinclair-Texas P. L., 12-in., Teague	34,043
Sun-Yount Lee P. L., 10-in., Sun City	29,518
Texas P. L. Co., 10-in., Douglass	23,957
Texas-Empire P. L. Co., 12-in., Port Arthur	24,881
Tidal Ref. Co., 6-in., Carthage	2,986
Total	299,894
Shipments to Refineries	
Arrow Ref. Co., Overton	S.D.
Beacon Ref. Co., Henderson	1,025
Boone Ref. Co., Arp	725
Central Ref. Co., Friars Switch	S.D.
Constantine Ref. Co., Overton	S.D.
Diamond Ref. Co., Overton	566
East Texas Ref. Co., Longview	12,021
East Texas Ref. Co., Friars Switch	S.D.
Gladetex Ref. Co., Gladewater	200
Gladewater Ref. Co., Gladewater	220
Kilgore Ref. Co., Kilgore	214
Overton Ref. Co., Overton	797
Petroleum Refractionating Co., Longview	S.D.
Sinclair Oil & Gas Co., Longview	564
Slack Ref. Co., Camp Switch	S.D.
Southern Oil Ref. Co., Reed Switch	250
Taylor Ref. Co., Tyler	897
V. O. E. Ref. Co., Gladewater	S.D.
Total	17,489
Shipments by Tank Car	
Cherokee Chief from Gladewater	325
Tyler P. L. Co. from Tyler	365
East Texas Ref. Co. from Longview	125
Total	815
Total daily average distribution	318,198
Total daily average production	329,334
Daily average to storage	11,136

CALIFORNIA SUCCEEDS IN UNIT OPERATIONS

(Continued from Page 14)

to exist under it, or it may be reduced in size if part of this acreage is proven nonproductive. Acreage already within the boundaries of the unit-operated field will be withdrawn if proven unproductive, but the owners of such acreage will enjoy the benefits and participate in earnings of the corporation for one year after the land has been proven unproductive.

At this time the association is operating 7 wells, the Standard Oil Co. of California 10 wells, and there are 7 miscellaneous wells, making a total of 24 producing wells. There are 33 wells in all that can produce and 6 new wells are drilling, four within the restricted area and two outside of it.

To maintain the required rate of production and offset decline from producing wells the association is now operating six strings of tools and it is estimated that as these wells are completed they will meet depletion conditions set up by withdrawing about 60,000 bbls. of oil per day from the producing wells controlled by the association.

Production Agreement

Under the working agreement all oil, natural gasoline and other hydrocarbons produced under the management of the association are distributed among members in kind or if so requested and ordered by a member of the association it is produced and sold for said member. All dry gas is sold by the association with the exception of the proportionate share of the Milham Exploration Co., which is taken in kind. The gas sales contracts of the remaining members are pooled with the association.

This dry gas is taken from the field by five gas lines, two running to San Francisco and the bay area. One of these lines is of 26, 24 and 22-inch size and has a capacity of 125,000,000 feet daily and the other is 20-inch size with an 80,000,000-foot daily capacity. One 10-inch line runs to Lemore and a 20 and 22-inch line runs to Los Angeles. The Southern Fuel Co. 26-inch lines runs to Long Beach and has a capacity of 200,000,000 feet daily.

The operating expenses and proceeds from the sale of production are divided among each member's acreage on the rate it bears to the total acreage controlled by the association. All work is carried on under a budget system and operations planned in advance.

Under this system of operation of properties by unit control under the corporation management, about $5,305,000 worth of oil and hydrocarbon products were produced between April 1, 1931, and January 1, 1932, and the expenses of operation were about $3,736,000, leaving a profit to be divided among participating members of the association of about $1,569,000.

For the year 1932 a budget estimate has been set up calling for the expenditure of $2,359,000, or at the rate of $520,000 per month, with a minimum of $250,000. This money is to be spent in developing new production and carrying on the business of the association as conditions may warrant.

On February 1, 1932, the association's average daily production was 28,388 bbls. of oil and 158,870,000 feet of gas, the gas-oil ratio averaging about 5,537 feet and varying from 1,089 to 35,525 feet per barrel. In addition, 210,618 gallons of gasoline was secured. This was all from eight wells producing at that time. About 10,000,000 feet of low-pressure gas was blown into the air each day.

In addition to the wells actually producing the association has seven others capable of production, but suspended, and six are now being drilled. The estimated daily potential of oil controlled by the association is 250,000 bbls. but if all completed wells in the field at the end of 1931 were allowed to flow unrestricted it is estimated that their daily production would equal that which has been allotted to the entire State of California, or about 456,000 bbls. daily, and besides this oil

there would be a great waste of gas in to the air because of insufficient market.

Gathering Systems

The association operates its own gathering system in the North Dome of the Kettleman Hills Field and runs the oil from the wells to association-owned tanks which are connected to pipe lines of major purchasing companies. The delivery of oil is designated by the members of the association. For the gathering service as of May 1, 1931, there was a charge of $.0075 per barrel to the pipe lines to whom the association delivered its oil. This only covered gathering and shipping costs and included no profits as the association is a nonprofit making corporation.

Royalty settlements are made upon the basis of the highest posted price in California for oil of equal or less quality. The wet gas is allocated to members of the association on the basis of its gasoline content in accordance with percentage of their particular portion and is delivered to or on order of members in as nearly average quality as possible.

The wet gas is collected through a system of three pipe lines, the high-pressure system handling 400 pounds or greater pressures, the intermediate from 150 to 400-pound pressures and the low-pressure system taking care of tank vapors and line drips.

As of October 1, 1931, the collecting charge for handling this wet gas was $.001 per 1,000 feet and this was collected from the absorption plants treating the association's gas.

Gas at the wells sells for from 3½ to 8 cents per 1,000 feet. Some contracts were based upon a sliding case taking the price of fuel oil as the guiding schedule.

Dry gas is returned to members of the association for disposal, excepting in the case of the Milham Exploration Co. The association-owned gas is distributed to cities in northern and southern California through the systems outlined above.

The gas from this field will vary in its gasoline contents from 1¼ gallons per 1,000 feet direct from the wells to as high as 9 gallons per 1,000 feet for tank vapors.

Production Regulated

In May, 1931, the California State Oil and Gas Conservation Board set the allowable daily production for the State outside of Kettleman Hills at 427,500 bbls. of oil until January 1, 1932, and allowed the Kettleman Hills area to produce 60,000 bbls. additional between the period covered. This agreement has been followed by the Kettleman Hills association but there are two operators on the structure who have been producing 4,000 bbls. per day additional because they claim that they must run that much oil to cover their expenses represented by investment and operations. This is causing some drainage of land owned by members of the association and has caused some portions of the dome to be drilled more closely than would otherwise have been considered good policy under the operating conditions set up by the association.

Mr. Patterson described the killing of Milham's No. 1 Elliott well by the Doheny Stone Drilling Co., giving details much as described in an article printed in the July 23, 1931, issue of The Oil and Gas Journal by L. P. Stockman. The same general method was used in bringing Continental Oil Co.'s No. 12-8 well (K.N.D.A. 9-12P) under control and it is now producing under restricted conditions as oil and gas are needed from it to make up their allowable.

Points From Discussion

In the discussion following the reading of the paper the following points were developed:

The operating costs for the period between April 1, 1931, and December 1, 1931, were found to be 6 cents per barrel for producing the oil with an additional charge of 3 cents per barrel for administration expenses, making the total cost per barrel of oil produced 9 cents.

Wells drilled to a depth of about 8,300 feet cost approximately $336,000 each. The casing program is quite similar for all wells in the field and consists of about 1,200 feet of 20-inch surface casing which is cemented in place. The next size string is 13⅜-inch, set between 5,500 and 6,700 feet and cemented. The string of 9⅝-inch casing is set in the bentonite formation above the Temblor sands and the 6⅝-inch flow string enters the Temblor sands for varying distances. As much as 750 feet of casing has been set in this formation, which is estimated to be about 1,100 feet thick at the top of the anticline and about 1,600 feet thick down the sides. Sand porosity varies from about 11 per cent on top of the structure to 18 per cent in the lower portion.

Only one well has so far shown water and it is located near the discovery well which ran wild for a considerable time. The well making water produced about 125 bbls. per day.

Some wells have been tubed with the result that the gas-oil ratio has been reduced below 10,000 feet. The oil is produced at a temperature of about 120° F. at the casinghead but the temperature in the formation is unknown.

The Superior Oil Co. drilled a well in 120 days, the shortest time for any completion in the field to date. On this well a 170-foot derrick was used and five joints of drill pipe handled at a time. Other conditions were favorable to permit of this record being established for it normally takes much longer than that to complete a well in this area.

The highest shut-in pressure noted on any well in the Kettleman Hills Field was 1,900 pounds at the casinghead but in killing one well it was necessary for the pumps to build up pressures of about 2,300 pounds.

The wells do not produce loose sand under ordinary conditions but when the Milham well was running wild it was found later that sand had badly cut the upper portion of the casing.

Taken as a whole the work of the Kettleman Hills North Dome Association indicates quite clearly how it is possible to co-operate in the development and production from high potential areas to meet state conservation laws and still make profit for both operators and royalty owners. It is an important achievement in the oil industry and one that can well be followed in other areas where it is possible to produce an excess of oil or where competitive drilling conditions would make capital investments out of proportion to possible returns for the amount of oil to be recovered.

GULF PORT SHIPMENTS LESS IN FEBRUARY THAN JANUARY

HOUSTON, Tex., Mar. 21.—Due partly to the shorter month, oil shipments from Gulf Coast declined 2,523,642.94 bbls. during February compared with January. Total shipments for February were 17,602,292.39 bbls. Those during January were 20,125,935.33 bbls., the record for a period of over a year. Export movement of crude alone increased during February but these shipments were comparatively small and gains were not sufficient to offset substantial decreases in coastwise liftings of crude and also refined products. Shipments by companies and ports were:

	Barrels				
	Crude		Refined		
Company and terminal—	Coastwise	Export	Coastwise	Export	Total
Atlantic Oil Prod. Co., Atreco	1,217,241.44	.....	.....	.....	1,217,241.44
Gulf Ref. Co., Port Arthur	302,615.48	.....	1,825,309.93	120,594.66	2,248,520.07
Humble O. & R. Co., Baytown	76,190.00	.....	1,082,357.82	1,439,891.77	2,598,439.59
Humble O. & R. Co., Harbor Island	1,773,809.00	.....	.....	.....	1,773,809.00
Humble O. & R. Co., Ingleside	162,385.00	.....	.....	.....	162,385.00
Humble O. & R. Co., Neches	.....	.....	.....	.....	.....
Humble O. & R. Co., Texas City	554,837.00	.....	.....	.....	554,837.00
Magnolia Pet. Co., Beaumont	*531,626.67	.....	*1,514,501.28	.....	2,046,127.95
Pure Oil Co., Smiths Bluff	188,103.71	.....	443,796.72	.....	631,900.43
Standard Oil Co. (La.), Baton Rouge	485,897.00	89,587.00	896,207.00	241,273.00	1,712,964.00
Sun Oil Co., Sabine Pass	1,450,306.91	.....	.....	.....	1,450,306.91
The Texas Co., Port Arthur	994,594.00	68,480.00	1,416,443.00	726,244.00	3,205,761.00
Total February	7,737,606.21	158,067.00	7,178,615.75	2,528,003.43	17,602,292.39
Total January	9,123,143.98	124,014.00	8,122,433.77	2,756,343.58	20,125,935.33
Difference	1,385,537.77	34,053.00	943,818.02	228,340.15	2,523,642.94

*Includes coastwise and export shipments.

WINS ARGENTINE SUIT

The Argentine supreme court has held unconstitutional a decree of the recent de facto government nullifying an oil exploitation contract between Standard Oil Co. of Argentina and Salta Province.

The decision permitted the company to enter suit against the province to establish the validity of its concession and to carry out the contract if the courts uphold its legality.

The contract provided that the Standard and associated companies could bore for oil for 30 years, paying the state 10 per cent royalty in cash or oil. The de facto government had nullified the concession on the ground that it was negotiated before the richness of the deposit was known.

TEXAS PIPE LINE LAW SUBMITTED TO COURT

(Continued from Page 25)

own leases to take care of this gas, we would lose our leases."

Lloyd Price, attorney for the Cities Service Gas Co., argued:

"Our contention is that we do not need the gas which the State would make us purchase from independents. Our 20-inch pipe line has a maximum capacity of 100,000,000 feet of gas per day and our potential production in Texas from wells on our land is 1,300,000,000 feet per day.

"Any gas we have to buy would be taking from us the money we paid for it without compensation and without due process of law and would violate the fourteenth amendment and the Texas constitution. It would be confiscating and taking the contract rights of private companies."

It was also the contention of two of the companies, the Texhoma Natural Gas Co. and the Cities Service Co. that they did not do business within the State and that they acquired their leases for producing gas and selling it in other sections of the country and that their enterprises were an interstate commerce venture and not under the jurisdiction of the State Railroad Commission.

Maurice Cheek, assistant attorney general, argued that the purpose of the law was to compel the pipe line companies to pay for what they took and explained that the plaintiffs' producing wells took the gas, which is a fugitive commodity, from beneath the lands of other producers who had no way to market their production.

"Under Texas law," he stated, "everything under the lands belongs to the landowner, and we have an affidavit from one holder of gas land in the area that the gas pressure on his holdings, which were not allowed to produce for want of a market, was lowered 14 per cent in one year by the producing gas wells about him."

The common carrier law was passed at a special session of the legislature during 1931. Under its provisions the companies are compelled to purchase all gas offered for sale within 15 miles of any of the lines.

OILS SUPPORTED ON GENERAL PRICE BREAK

(Continued from Page 85)

296,426. Total reserves on December 31, 1931, for renewals, replacements, depletion, contingencies, etc., were $134,233,000.

Memphis Natural Gas

Memphis Natural Gas Corp. has declared the regular quarterly dividends of 15 cents per share on the common and $1.75 on the preferred, both payable April 15 to stock of record March 31.

Ashland Refining

Ashland Refining Co. reports for 1931 net income of $126,135 before depletion and federal taxes, compared with earnings of $174,940 in 1930.

Monamotor Oil

Monamotor Oil Co. (Barnsdall subsidiary) reports for the year ended November 30, last, net income of $15,498 after depreciation, interest, expenses and other charges, as compared with $16,717 in 1930.

Standard of Ohio

Standard Oil Co. of Ohio reports for 1931 net income totaling $2,383,785, equal after all charges and dividend requirements on the 5 per cent preferred stock to $2.38 per share on 752,467 shares common stock outstanding at the close of the year. This compares with net income of $3,724,325 in 1930, equal to $5.20 a share on the 560,720 shares outstanding on December 31, 1930.

Indiana Pipe Line

David Gregg, III, was elected a director of Indiana Pipe Line Co. at its annual meeting last week, succeeding the late E. T. P. Greenidge. Other directors and officers were re-elected. The date of the annual meeting has been changed to the fourth Thursday in May.

Venezuelan Petroleum

Venezuelan Petroleum Corp. reports for 1931 net income of $109,756 after expenses, royalties and interests and adjustment for federal income taxes, equal to about 6 cents per share on the 2,000,000 shares outstanding. This compares with $291,129, or 15 cents per share earned in 1930. The company is a subsidiary of Sinclair Consolidated Oil Corp.

Texon Oil

Texon Oil & Land Co. (Delaware) and Texon Oil & Land Co. of Texas report for the year ended December 31, 1931, net earnings, including $1,203,974 equity in current year's earnings of controlled companies not consolidated, of $1,361,901 after intangible development costs, depletion, depreciation, interest, etc. This compares with $2,175,799 similarly earned in the previous year.

Seaboard Oil

Options have been granted the management of Seaboard Oil Co. to purchase up to 47,000 shares of the company's stock at certain designated prices under quoted market prices during the next three years, the annual statement issued by John M. Lovejoy discloses. The authorization given the management provides for the acquisition of 20,000 shares in 1932 and 1933 and 27,000 shares in 1934, the price in no event to be less than $17 per share. (Seaboard Oil is currently quoted at $8 per share.)

At the annual meeting May 18 stockholders will be asked to approve a reduction in the capital stock from $7 to $4 a share in order to correct the consolidated deficit of $3,479,627 shown as of December 31, 1931, transferring the resultant amount of $3,733,149 to paid-in surplus. The proposed change, the company states, will in no way affect the actual value of the company's assets nor change the stockholders' proportionate ownership in the company. The number of shares outstanding will remain unchanged.

The company (formerly Mexican-Seaboard Oil Co.) reported for 1931 net profit of $123,711 after interest, depreciation, depletion, etc., equal to 10 cents a share on the outstanding capital stock. This compares with $605,873 net earnings in 1930. Current assets of $2,112,000 on December 31 last compared with current liabilities of $173,000, a ratio of more than 12 to 1, compared with a ratio of 3.8 to 1 at the end of 1930.

Viscosity Readings Converted by Use of International Table

By Prof. Dr. L. Ubbelohde
Karlsruhe

It has recently been pointed out, amongst others by Mr. Barr (National Physical Laboratory, Teddington),[1] Mr. Erk (National Physical and Technical Institute, Berlin) and Mr. Herschel (Bureau of Standards, Washington), that conversion tables for the Engler, Redwood and Saybolt viscosimeters are necessary, in order to compare with each other the values determined by these viscosimeters.

In order to prevent unnecessary duplication of work I wish to inform as large a circle as possible that since October, 1930, I have been working on the preparation of such tables, which will appear in book form. This information has already been imparted verbally to the New International Association for the Testing of Materials at the meeting of September 10, 1931, in Zurich. The tables are a continuation of those I published in 1907 for the Engler viscosimeter,[2] use being made of the method[3] I specified for making the viscosimeters comparable with each other by reducing their readings to terms of absolute measurement, in which connection further preliminary work has been done within the International Petroleum Commission,[4] first by Wiebe, Berlin,[5] Meissner, Berlin,[6] Higgens, London,[7] A. H. Gill, Washington,[8] and later by others.

The first part of the tables contains: (1) The Engler degrees; (2) the Redwood seconds; (3) the Saybolt seconds; (4) the kinematic viscosity (i.e., an absolute measurement), arranged in such manner that any desired measurement can forthwith be read for the outflow of oil in seconds from any one of these apparatus.

In addition to the normal outflow tube of the Engler viscosimeter, the table covers also a narrower and hitherto unknown outflow tube of the Engler viscosimeter, which may be used at will to measure also extremely thin-bodied oils on the Engler viscosimeter more accurately than formerly.

The practically and theoretically important influence of temperature on the viscosity of oils can only be treated correctly in terms of absolute measurement, for which reason the dependence of the viscosity of mineral oil and pure hydrocarbons on temperature is given in absolute figures according to my tests already in the first volume of the first edition of the Engler-Hofer handbook,[9] and further research in this direction has been made at the Karlsruhe Technical College, as well as other places. The practical importance of the temperature-viscosity curve renders it desirable to have an easy method of plotting this curve, and for this reason it will be demonstrated in the second part of the booklet how from only two measured viscosity values the viscosity of oils at any other desired temperatures, i.e., the dependence of viscosity on temperature can be approximately calculated or can be ascertained diagrammatically. As basis the formula of Walther[10, 11] is used:

$$W_{KT_1} = -m(\log T_1 - \log T) + W_{KT}$$

in which T and T_1 represent absolute temperatures, W_{KT} and W_{KT_1} the value of log log (ν+a) at these temperatures, ν the kinematic viscosity in centopoises/gravity, and m a constant characteristic for each oil. The inconvenience of having to calculate the expression W_K in each case has hitherto stood in the way of the use of this, in itself, simple formula. In one of the above-mentioned tables, therefore, the values for W_K as well as for ν are entered. There is also shown a diagram, plotted in accordance with the above-cited formula, in which the viscosity values, ascertained at not less than two temperatures, only need to be entered and joined by a straight line to enable one to read off the viscosity at any other temperature and also a value for the dependence of viscosity on temperature. Finally, two further diagrams[11] are shown, from which the "Viscosity Index"[12] can be ascertained from measured viscosity values, respectively, from the value of m of the tabove-cited formula.

[1]Barr, Firt Report of the New International Association for Testing Materials, Group C. 1-6, Chem. Zentralblatt, 1931. 4. p. 3,064.
[2]Published by S. Hirzel, Leipzig, 1st ed., 1907; 3d ed., 1922.
[3]See Chemiker-Zeitung, 1907, p. 38.
[4]See Petroleum 27, p. 739 (1931).
[5]See Petroleum, Vol. 8, p. 69 (1912).
[6]See Chem. Umschau, Stuttgart (formerly Chem. Revue, Hamburg), 19, 30, and 44 (1912); 20, 123 (1913); 21, 28 (1914).
[7]See English Section of the International Petroleum Commission, publication of the I.P.C. No. 15,750; further National Physical Laboratory coll. researches, Vol. 11, pp. 1-16.
[8]President of the American Society for Testing Materials, Report of Committee D2, regarding lubricating oils. Publication of the I.P.C., No. 30/4,542
[9]Engler-Hofer, Das Erdol, Vol. 1, pp. 52-56 (1913).
[10]Walther, Erdol und Teef, Vol. 7, p. 382 (1931).
[11]Walther, Maschinenbau, Vol. 10, p. 670 (1931).
[12]Dean and Davis, Chem. Metall. Engin., Vol. 36, p. 618 (1929).

FURNACE OILS AND KEROSENE ARE STRONG

(Continued from Page 8)

the crude oil situation is concerned, conditions point to higher rather than lower prices for the immediate future so the way out for the refiner lies in better prices for plant products extending from the lowest gravity fuels oils to the best grades of lubricating stocks, all of which have been sold on a market dominated by the plan of moving output without regard to price.

The situation is of special importance to many refiners who realize the need of modernizing their plants. The refinery owner who has been able to keep pace with the progress of the past two years in the design and operation of plants is the exception rather than the rule.

Because of unprofitable operation, many refiners have not only not installed new equipment but they have not been able to maintain the old as they did in previous years. They have reached the point where something will have to be done in the near future. The greater stress being placed on quality of products is an important factor in this development. Practically every refiner needs to install new equipment or rehabilitate the old in order to manufacture a larger production of gasoline which will meet the requirements of regular or premium grades in regard to antiknock rating. The same situation applies to lubricating oils, special naphthas, road oil and many other products, the specifications for which are constantly changing.

As explained by one operator, most refiners do not have reserves to make these necessary plant changes. They must rely on current profits for any future plant investments. This operator believes that this need of profits is already being reflected in the refinery markets and he expects that its effects will be more apparent through the spring and summer months.

Gasoline and Naphtha

U. S. Motor gasoline on Monday and Tuesday was generally quoted over a price range of 3⅜ to 3⅝ cents for low octane material. The 57-65 octane U. S. Motor sold at a low of 3¾ cents and 65 and above octane at a low of 4 cents.

Resale U. S. Motor gasoline of low octane was available as low as 3¼ cents with reported material in the Chicago territory available as low as 3⅛ cents basis Group 3. As previously explained, Oklahoma refiners for the most part are not in distress in regard to gasoline shipments. In fact there are several refiners who have curtailed their crude oil runs to the point where the current output is hardly sufficient to take care of their own station requirements and jobber contracts. Normally they would be running gasoline to storage in preparation for the summer demand. These refiners and others realize the desirability of keeping inventories from accumulating and are doing more than their share to assure a healthy statistical condition later in the spring.

The 60-62 400 endpoint grade appeared to be stronger at a low of 3⅝ cents than was U. S. Motor at 3⅜ cents. A number of refiners are refining a 420 to 410 endpoint material which they usually sell at the U. S. Motor price but the strictly 60-62 400 endpoint grade is not so freely offered.

There continues to be so little spot trading in the 390, 375, 360 and 350 endpoint grades that it is difficult to determine the going spot market. The stabilized grades of natural gasoline with a vapor pressure under 12 pounds and endpoints usually under 350 are taking the "play" away from these low endpoint refinery grades. Jobbers who have been accustomed to purchase 375 to 350 endpoint material for winter motor fuel now have the stabilized grades offered them in many cases at lower prices with a guaranteed octane number above 60. Most refiners realize this condition and they have curtailed their output of the low endpoint grades to take care of regular customers and have no excess material to offer on the spot market. The 390 endpoint was quoted at a low of 3¾ cents the first of the week, 375, 3⅞ cents and 360 endpoint 4⅛ cents. The 50-52 450 endpoint naphtha (blending) is firm at 3⅜ to 3½ cents.

Kerosene

Whenever the kerosene market appears about to weaken, sizeable business makes its appearance and the market tightens. This was true the past week when there was a steady jobber business supplemented by important interrefinery buying. The market for 41-43 water white was strong in Oklahoma at 2⅝ to 2¾ cents.

Furnace Oils

The demand for furnace oil material centered in the 32-36 gravity, zero to 10, under 190 flash. At the same time the demand for 38-40 furnace was not so strong as it has been, due to outside competition, and prices are fractionally lower. The 32-36 grade was strong at a low of 2¾ cents. The 36-38 grade could be purchased for the same price while 38-40 was selling at a low of 2⅞ cents.

This seeming disparity between these furnace oil prices is due both to supply and demand. On the supply side many skimming plants can manufacture a 38-40 straw distillate by straightrun distillation. It is rare, however, to find a refiner who can obtain a 32-36 zero gas oil by skimming. It is not obtainable from paraffin or mixed base crude oils. This grade is coming from the refineries with cracking facilities, the product in many cases being recycle material. On the demand side many distributors find that furnace oil consumers prefer the low cold test and low gravity furnace oils. The B.t.u. content is greater.

Fuels and Gas Oils

The fuel oil and gas oil market in Oklahoma can be said to be firm. The only exception comes from the relatively few sales of exceptionally high cold test material. Two or three skimming plants in the State are still selling a U.G.I. gas oil of 60 cold test at 1 cent a gallon, but the lower cold tests are bringing 1⅛ and 1¼ cents.

The residual fuels of low to average cold test are firm, selling over a price range of 22½ to 50 cents. Although the price differentials are usually based on gravity, more attention is being paid to viscosity and some of the lower gravity fuels are bringing premium prices.

NEW GEOLOGICAL MAP

HOUSTON, Tex., Mar. 21.—Gulf Coast Engineering Co. of Houston has announced the completion of a complete geological map comprising the territory from southern Arkansas into northern Mexico. It gives a perspective of the mineral belt through the Rio Grande Valley escarpment fields, the Balcones Fault Zone fields, the Coastal salt domes, the East Texas Basin salt domes, the Sabine uplift, and the North Louisiana and Arkansas fields, showing geological structures, producing oil, gas and sulphur fields in color. Gulf Coast Engineering Co., of which George M. Dougherty is president, has offices in the Larendon Building, Houston.

SAN JOAQUIN CHAPTER DIVISION OF PRODUCTION

TAFT, Calif., Mar. 19. — Victor C. Sviminoff, connected with the General Petroleum Corp. at Bakersfield, talked to nearly 200 members and guests of the San Joaquin Valley Chapter, American Petroleum Institute, Division of Production, Tuesday evening, on the subject "Sovietization of an Oil Industry."

Harry N. Blakeslee, safety engineer for the American Petroleum Institute of Dallas, Tex., lauded the work of the San Joaquin Valley chapter.

Discussion of a question box topic, "How Can Extreme Corrosion of Pump Equipment Be Economically Overcome," was led by B. F. Caffee, production foreman of the Standard Oil Co. of California. It was the consensus of opinion that corrosive waters in several areas of the west side can be economically handled by the use of the proper grade of stainless steel fittings and chromium-plated plungers. Difficulty has been experienced in obtaining plungers with the proper thickness of chromium plating. The high initial cost of this equipment will probably be lowered as it comes into more general use.

Neal H. Anderson, state oil umpire, discussed factors contributing to the seriousness of the present conditions in the California oil industry. Some form of regulation is deemed necessary to enforce an equitable proration of production between operators of the State in order to effect stabilization.

A discussion of the Sharkey oil control measure to be voted on by the people of the State on May 3 was led by W. L. Adkisson and Angus J. Crites. Mr. Adkisson stated that, as a business man in an oil community, he was actively supporting the Sharkey bill because he believes it will restore to general business the buying power of California's $3,000,000,000 oil industry, the basic and largest industry of the State. Passage of this bill will prevent a recurrence of the present chaotic condition of the industry, as an overproduction of crude oil will not be permitted, he stated. Mr. Crites, of the Anchor Oil Co., stated that agitation against the bill is being fostered by a selfish, limited group who do not represent the independent oil producers of the State.

TEXAS OUSTER SUITS SET FOR MARCH 28

AUSTIN, Tex., Mar. 21. — District Judge J. D. Moore has set March 28 to hand down his ruling on constitutionality of the Texas antitrust laws, attacked as invalid by defendants in the antitrust ouster suit brought by Attorney General James V. Allred against 15 major oil companies and two petroleum associations.

Judge Moore recessed the trial of the suit until that date to permit the court to study the question and to dispose of other litigation and to allow attorneys in the case time to care for other matters.

Allred sued for cancellation of the rights of the defendants to operate in Texas and for penalties aggregating $17,850,000, alleging the defendants violated the Texas antitrust laws by conspiring to monopolize retail market outlets for gasoline and refined oil products.

The companies attacked the antitrust laws as unconstitutional, arguing that a legislative act, exempting farm co-operatives from prosecution under the laws against trusts, had rendered the main body of antitrust statutes invalid. The defense contended the exemption was discriminatory and violated the equal rights clauses of the state and federal constitutions.

Should Judge Moore hold the laws unconstitutional, trial of the suit would be held in abeyance pending determination of the validity of the statutes by the Supreme Court.

REAGAN ROYALTIES SUIT BEFORE COURT

AUSTIN, Tex., Mar. 21.—Law arguments will start Thursday in Atty. Gen. James V. Allred's suit seeking to recover $575,000 in additional royalties for the University of Texas on Reagan County production against seven of the nine companies named in the suit. The case will be tried before Judge J. D. Moore.

First question to be decided will be pleas of privilege of the Continental Oil & Refining Co. and the Reagan County Purchasing Co. that they are foreign corporations and entitled to have the case tried at Fort Worth, where their Texas offices are located. Mr. Alldred's contention is that the law requires all royalties to be paid at Austin and thus locates the case in Travis County courts.

Pleas of misjoinder, filed by the Humble Oil & Refining Co., in which it contends it is improperly joined because it has no contract with the State, will be taken up next.

Actual trial of the case, after the law questions are disposed of, cannot be started before the April term of court, Mr. Allred said.

The State does not ask any recovery against the Humble Pipe Line Co. and the Continental company, which are joined in the suit. It seeks recovery of $225,000 from the Texon Oil & Gas Co., Texon Oil & Land Co. of Texas, Group No. 1 and Group No. 2 Oil corporations, Reagan County Producing Co. and Humble Oil & Refining Co., and asks $350,000 from the Big Lake Oil Co., Reagan County Purchasing Co. and Humble Oil & Refining Co.

The suit is based on the Reagan County Purchasing Co. contract, whose validity was accepted in a former state suit in which Atty. Gen. Claude Pollard and Atty. Gen. Robert L. Bobbitt recovered $1,000,000 to the university for additional purchase royalties. That judgment left open for future settlement the correct construction of the purchasing contract. The State claims that fixing of the purchasing price should be based on a larger number of posted prices for oil being used to reach the contract average basis for the University of Texas oil.

Mr. Allred said the five companies buy oil in about 30 fields, in most of which identical prices usually are posted, that in the Panhandle a lower price was posted, one price was paid in 20 fields, and three lower prices paid in the Panhandle were averaged together, instead of 20 of the identical higher prices and the three lower prices, in reaching the basis on which the university has been paid.

HUMBLE SELLS POWELL WELLS

FORT WORTH, Tex., Mar. 22.—Humble Oil & Refining Co. has sold 44 producing wells and some warehouse stock in the Powell Field, Navarro County, to Olsen Brothers of Tyler for $50,000 in cash and same amount out of one-third of oil produced from the wells, which are making 13,450 bbls. fluid daily, 735 bbls. oil. The majority of the wells will be junked immediately and equipment moved off, probably to East Texas.

W. L. STOUT DIES

William L. Stout, formerly credit manager for the Parkersburg Rig & Reel Co., Parkersburg, W. Va., died there on March 14. Mr. Stout had been in ill health for some time, but his death came as a shock to his many friends in the oil country where he was well known through his many years' association with the Parkersburg Rig & Reel Co.

GEOPHYSICAL SURVEYS

For the past several months William M. Barret, Inc., of Shreveport, have been conducting extensive geophysical surveys in Central Louisiana. One crew is operating in portions of Sabine, Vernon, Natchitoches and Rapides Parishes, covering an area of 200,000 acres. Another crew is engaged in Sabine Parish near the Zwolle Field.

NATIONAL OIL SCOUTS TO HOUSTON MAY 15-17

DALLAS, Tex., Mar. 19.—The executive committee of the National Oil Scouts Association of America met here at the Adolphus Hotel today to discuss the coming convention.

Houston was chosen as the convention city for 1932, and the dates of May 15, 16 and 17. Three days were decided upon for the convention this year due to a planned trip which will consume one full day. This trip will consist of sightseeing down the Houston Ship Channel, then through the large refinery of the Sinclair Refining Co., and through one of the most perfectly developed fields in the country, the Sugarland Field. A trip through this field will acquaint the scouts with a model system of repressuring a gas depleted field.

C. A. Strahan, scout for the Atlantic Oil Producing Co., Shreveport, La., chairman of the executive committee of the association, presided at the meeting. John H. Langston, chief scout of the Sun Oil Co., Dallas, is president of the association, and J. W. Selby, chief scout of the Shell Petroleum Corp., Dallas, is secretary-treasurer.

BUREAU OF MINES CUT PARTIALLY RESTORED

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 21.—The appropriation of $221,215 estimated by the Bureau of the Budget for the oil and gas investigations of the Bureau of Mines for the fiscal year 1932-33 has been restored to the commerce department appropriation bill after having been reduced by $75,000 by the House of Representatives.

This action was taken by the senate committee on appropriations after Director Scott Turner of the Bureau of Mines had explained the nature of work that would be eliminated by cutting $75,000 from that appropriation.

The oil and gas investigations will still be short of funds compared with the present fiscal year to the extent of $11,645 and will will make necessary the dropping of two investigators at Boulder, one at Pittsburgh, and one in Washington, and also will reduce the supply money for the Bartlesville station. However, these items comprising the $11,645 reduction were recommended by the Bureau of the Budget. There is little doubt that this appropriation bill will be passed by the Senate as reported and there is an excellent chance that no further changes will be made in conference, Representative Douglas having written to the senate committee saying his amendment reducing the allowance for that work by $75,000 was too severe and indicating his willingness to have it modified.

TANK WAGON CHANGES

(Continued from Page 82)

March 16, advanced gasoline tank wagon and service station prices one-half cent. New prices are 16 and 16½ cents.

Continental Oil Co., effective March 5, reduced gasoline service station price 2 cents at Twin Falls, Ida. Effective the same date there was put into effect a dealer discount of 2 cents per gallon off tank wagon price at that point.

Magnolia Petroleum Co., effective March 18, advanced gasoline tank wagon and service station prices 1 cent at El Paso, Tex.

WILL RESUME POSTED PRICES

The Panhandle Refining Co. of Wichita Falls, Tex., which some time ago announced a reduction in the price it would pay for crude oil, will return to the regular posted price schedule on April 1, because of improved refined market conditions. Some of its crude oil customers refused to sell at the lowered price and found buyers in the Olney Refining Co. of Olney and the Iowa Park Producing & Refining Co. of Iowa Park.

HIGHER PRICES RESULT IN RIOT AT SANTIAGO

NEW YORK, Mar. 19.—Announcement in Chile by West India Oil Co. (Standard of New Jersey subsidiary) and Shell Mex (Royal Dutch-Shell subsidiary) that the price of gasoline would be increased by 25 per cent precipitated a riot at Santiago, capital of Chile, when motorists blocked the streets with their vehicles and abandoned them in protest against the advance.

The demonstration centered around the government buildings, and as a result the minister of the interior, and later the president, communicated with the managers of the two companies insisting that there can be no advance in gasoline prices in the case of motor fuel delivered to commercial motors of any kind.

According to a special cable to the New York Times: "The foreign firms explained that they have been forced to raise the price because the government commission controlling exchange operations has so far failed to keep its promise to deliver drafts desired by the companies for sending their accumulated collections out of the country.

"The companies, furthermore, informed the authorities that the impossibility of freely remitting their collections has seriously handicapped their business, since the unstable exchange rate, coupled with the difficulty of obtaining drafts when necessary, has obliged them to take protection by means of a slight increase in the sale price of imported fuel."

Later reports that the head offices of the companies involved would insist on the price advances led to a statement by the government that a bill would be sent to the Chilean congress immediately fixing the maximum gasoline price as that formerly existing.

Late Fields

(Continued from Page 20)

in McPherson County, Slick, Pryor and Lockhart's No. 1 Stucky, SE cor. SW SW, Section 27-20-3w, was straightreaming at 3,368 feet on top of the Viola lime. A long fishing job has delayed completion.

According to the announcement of L. R. Pickrell, umpire and agent of the Public Service Commission, the potential production of the Ritz-Canton Pool, in McPherson County, is 98,833 bbls. from 124 wells. The potential production of the 73 Viola lime wells was 81,618 bbls. while the combined output of the 51 chat producing wells was 17,215 bbls. These potential figures are based on gauges taken from February 25 to March 13 and were obtained by a pumping test. Due to the increase in the completion of new wells with no increase in the pipe line outlet, the allowable output of the Ritz-Canton Pool has been reduced from 10 per cent of the potential to 8 per cent.

SEEKS CRIMINAL ACTION

LONG BEACH, Calif., Mar. 19.—The city council has passed a resolution calling upon the district attorney's office at Los Angeles to bring criminal action against a group of refiners in this section due to the failure of the owners to eliminate obnoxious odors at their plants. Numerous conferences between refinery owners and city and county health officials have been held in recent years regarding the elimination of these odors. It is claimed that refiners have failed to solve the problem.

TEST IN ALABAMA

SULLIGENT, Ala., Mar. 19.—The Lamar Democrat announces drilling machinery is being moved to a location in the NW NW, Section 22-15-16, 6 miles west of Vernon, Lamar County, for a test to be drilled by people represented by Jesse P. Woodward of Columbus, Miss. The well is to be drilled on the land of F. B. Gardner. Lamar County is in northeastern Alabama, and adjoins Lowndes County in Mississippi.

PENN MEX FUEL EXPLORES

Penn Mex Fuel Co., controlled by South Penn Oil Co., is undertaking exploration work in Vera Cruz state, Mexico, under a permit granted by the ministry of industry, commerce and labor. A seismograph will be employed. The work will be done on lands known as Guadalupe, Zapotal, Las Canas and Palo Blanco.

D. C. GASOLINE HEARING

WASHINGTON, D. C., Mar. 21.—Senator Capper, chairman of the Committee on the District of Columbia, today announced that a hearing on the proposed increased gasoline tax in the District of Columbia from 2 to 4 cents a gallon will be held Friday, April 1, at 2:30 p.m.

THE OIL MAN'S CALENDAR

March

21-27—Los Angeles, Calf., third annual Oil Equipment and Engineering Exposition.

23-25—Detroit, Mich., Michigan Oil Men's Association, Statler Hotel.

24-26—Oklahoma City, Okla., American Association of Petroleum Geologists.

28-Apr. 1—New Orleans, La., American Chemical Society.

29—Ranger, Tex., Plant Operators meeting, Natural Gasoline Association of America.

April

2-10—Detroit, Mich., National Aircraft Show.

6-8—Excelsior Springs, Mo., Western Petroleum Refiners Association.

6-8—Birmingham, Ala., Distribution Committee, Technical Section, American Gas Association.

11-16—Boston, Mass., ninth annual convention, American Oil Burner Association.

14-15—Tyler, Tex., spring meeting, Southwestern District, A.P.I. Division of Production.

21-22—Cleveland, Ohio, semiannual meeting, National Petroleum Association.

22-24—Dallas, Tex., Petroleum Industry Electrical Association, Baker Hotel.

27-29—White Sulphur Springs, W. Va., National Pipe and Supplies Association, Greenbrier Hotel.

27-29—New York, annual meeting, American Welding Society.

May

4-6—Honolulu, Hawaii, National Foreign Trade Council.

9-11—Tulsa, Okla., Natural Gas Department, American Gas Association.

9-13—Atlantic City, N. J., National Fire Protection Association.

17-19—Tulsa, Okla., Natural Gasoline Association of America, Mayo Hotel.

June

1-3—Tulsa, Okla., mid-year meetings, American Petroleum Institute, Mayo Hotel.

6-9—Detroit, Mich., National Association of Purchasing Agents.

20-24—Atlantic City, N. J., American Society for Testing Materials.

September

14-16—Atlantic City, N. J., Annual meeting, National Petroleum Association.

22-23—Chicago, National Association of Motor Bus Operators.

November

15-17—Houston, Tex., Annual meeting, American Petroleum Institute.

MEXICO MAY OPPOSE AMERICAN OIL TARIFF

NEW YORK, Mar. 21.—British and American oil companies operating in Mexico have appealed to Gen. Abelardo Rodriguez, Mexican secretary of industry, commerce and labor, to protest imposition of an oil import duty by the United States on the ground that such a duty will work strongly against the Mexican petroleum industry and further increase unemployment in Mexico.

The appeal to the Mexican government was made through the Confederation of Industrial Chambers of Commerce, over the signature of Hilary Branch, legal representative in Mexico of Standard Oil Co. (Indiana), and Gaylea Steel, general manager of the Sinclair interests in Mexico. Enactment of an import duty on petroleum by the United States, the appeal set forth, would make unprofitable shipments of Mexican crude and products to the United States.

SOLID CO_2 MAY BE MADE AT LOW COST

(Continued from Page 18)

An indirect fired lime kiln has been suggested. This would of course eliminate contamination by gases of combustion and reduce the dust removal problem. Such a kiln would be expensive and greatly increase fuel consumption. Its application has not yet been successfully achieved to my knowledge.

It must be remembered that in addition to the heat energy required for heating the carbonate material the energy for compression, cooling and liquefaction is still required. Economy may be shown in the unusual case where: Location with respect to market, low power cost, and efficient waste heat recovery overbalance unfavorable conditions.

The recovery of carbon dioxide from natural gas wells where it is often obtained at pressures above 1,200 pounds per square inch in an almost pure state and where costs of compression may be eliminated sounds alluring. The biggest difficulty here is purification. Means have not yet been devised for economically ridding the CO_2 gas of hydrocarbons such as methane, and other impurities such as helium, air, hydrogen sulphide, etc. In addition, the remoteness of such wells from possible markets has been a factor mitigating against their use as carbon dioxide producers.

All things considered to date CO_2 obtained from the combustion of fuels seems to offer the best possibilities. A self-contained unit built in the center of the marketing area and which while producing CO_2 generates its own power for extraction, compression, cooling and liquefaction presents the best balanced and most economical layout in general.

Fuels Used

Fuels which have been used for this purpose to date are: (a) Coal, (b) coke, (c) fuel oil, and (d) natural gas. It is desirable to have these fuels as free as possible from sulphur and other impurities. The local fuel situation will govern the type fuel to be used in any particular plant. A good grade coal will give approximately 14 to 15 per cent CO_2 in the flue gas. Ninety per cent carbon coke will give 18 to 19 per cent, fuel oil 12 to 14 per cent and natural gas 10 to 11 per cent.

Pure air contains 21 per cent oxygen by volume and 23 per cent by weight. Combining: C with a molecular weight of 12 plus O_2 with a molecular weight of $2 \times 16 = 32$ we get CO_2 with a molecular weight of 44, or in other words 12 pounds of pure carbon requires 32 pounds of oxygen for perfect combustion, thereby forming a total combined weight of 44 pounds of CO_2. Theoretically 1 pound of pure carbon should yield 3.66 pounds of CO_2. The CO_2 formed per pound fuel will naturally depend on the percentage of carbon in the fuel, the amount of excess air admitted, and the percentage oxygen combining with hydrogen in the fuel to form water.

The combustion equation for methane is

$$CH_4 + 2O_2 + 7.52N_2 = CO_2 + 2H_2O + 7.52N_2$$

Table 2 below shows amounts of air required and flue gas products when burning methane, ethane, etc. Figures are in cubic feet per cubic foot of fuel gas.

TABLE 2

Gas	Required for combustion: Oxygen	Air	Flue products: CO_2	H_2O	N_2
CH_4	2.0	9.52	1.0	2.0	7.52
C_2H_6	3.5	16.67	2.0	3.0	13.17
C_3H_8	5.0	23.80	3.0	4.0	18.80
C_4H_{10}	6.5	30.95	4.0	5.0	24.45

It is obvious that so far as the recovery of CO_2 is concerned the high CO_2 content of coke combustion gases is more favorable than the lower CO_2 content of natural gas combustion gases. The relative costs of fuels available would naturally determine the choice.

For efficient over-all operation great care must be taken with design and operation of the boiler installation. Burners, furnace design and setting must be calculated to produce as near perfect combustion as is possible. This entails high temperatures and tight setting, breeching and flues, to insure a minimum of excess air without danger of incomplete combustion. Incomplete combustion causes formation of undesirable compounds which have to be scrubbed out subsequently with difficulty, while excess air reduces the CO_2 available in the flue gas.

The plant power requirements make necessary an extremely efficient transfer of furnace heat to steam. In a well-balanced self-contained plant the boiler installation to produce CO_2 up to the absorption and compression capacity of the recovery plant should supply the entire amount of power and reactivating steam required by the plant.

Methods for CO_2 Recovery

Absorption processes for the recovery of CO_2 from gases have used the following absorbents: (a) Water, (b) sodium carbonate solution, (c) potassium carbonate solution, (d) aqueous solutions of organic nitrogen base compounds such as triethanolamine.

The low capacity of water for absorbing CO_2 has prohibited its use except where the partial pressure of CO_2 is high and efficient extraction of little consequence. This latter condition is met only in high-pressure gas such as compression of total volume of flue gases which is a costly process indeed.

Sodium and potassium carbonate solutions have been used almost exclusively as absorbing media in the past. Potassium carbonate has been found to be more efficient than sodium carbonate due to its greater alkalinity. As neither of these carbonates or their bicarbonates are very soluble in water, highly concentrated solutions cannot be used and hence relatively high circulation rates are required.

Extraction efficiencies ranging from 50 to 60 per cent have apparently been considered satisfactory. From this it may be surmised that high CO_2 content in the flue gas has been an economic necessity, which in a self-contained plant has made coke highly desirable as a primary fuel, even at increased prices, and has practically eliminated natural gas as a choice in the past.

The following table by J. C. Goosman shows practical results obtained using sodium and potassium carbonate solutions for absorbing CO_2 in bubble cap towers. The soda solution contained 6.14 pounds per cubic foot and the potassium solution contained a high concentration of 19.5 pounds per cubic foot. Coke was used as fuel.

TABLE 3

Per cent CO_2 in flue gas	Per cent CO_2 in absorber outlet gas: Sodium carb.	Potassium carb.
16	6.5	4.5
14	6.3	4.3
12	6.1	4.2
10	5.9	4.1

The most desirable qualities of an absorbent for continuous separation of carbon dioxide are: (1) It should absorb CO_2 readily and in large volume, (2) the carbonate formed should be easily decomposed by heat, releasing CO_2 in pure form, (3) the absorbent should have a high boiling point and consequently low vapor pressure at the temperature at which it is used, (4) the base should be stable and not easily decomposed under the conditions existing in the plant.

The latest absorbing medium to be used commercially has the trade name of "Girbotol." Its present composition is 50 per cent water by volume and 50 per cent triethanolamine $N(CH_2CH_2OH)_3$. Triethanolamine is an organic nitrogen base compound of medium basicity.

It has a specific gravity of 1.124 at 60° F., molecular weight of 149 and a very high absorptive capacity. In an aqueous solution it reacts with acidic gases such as CO_2 according to the law of mass action. In this case the ultimate capacity of the solution for absorbing CO_2, assuming a partial pressure of CO_2 of 760 mm. Hg and a temperature of 95° F. is 6.7 standard cubic feet CO_2 (60° F. and 760 mm. Hg) per gallon of solution. The use of this solution as an absorbent at absorber pressures of approximately 3 pounds per square inch gauge permits stripping from 75 to 85 per cent of CO_2 from inlet gases containing 10 to 11 per cent CO_2 with nominal circulating rates. Complete stripping of CO_2 can be effected at higher pressures and increased circulating rates. The absorption plant flow and equipment required are fundamentally the same regardless of absorbent employed and both are essentially what we are used to in natural gasoline absorption plants

The following description is based on a self-contained plant now in operation using Girbotol as an absorbent and natural gas as fuel. Details are shown in Plate 1.

The starting point is at the boiler as indicated by the letter "A". About 25 to 30 boiler horsepower per ton per day are required for total plant operation including absorption, liquefaction, compression and final solidification. The stack is fitted with single or double dampers arranged in such a fashion that all or any part of the flue gas may be trapped into the duct "B" which leads to the absorption plant. It is desirable to handle flue gases under a slight pressure above atmospheric to prevent inleakage of air. The duct "B" conveys the gas into the bottom of the primary scrubber "C". This scrubber is a direct contact water wash scrubber which partially cleans the gas as well as reducing its temperature to between 120° F. and 100° F. After being thus scrubbed, cooled and reduced in volume it passes into the suction of the centrifugal blower "D" which compresses the gas to 5 or 6 pounds per square inch at the discharge. The gas then passes through the secondary water wash scrubber "E" which further cleans the gas, removes heat of compression, and reduces temperature of outlet gas to about 100° F.

At this point it might be interesting to note that the water will tend to absorb some of the CO_2 but to a negligible extent. In some cases, depending upon quality of gas, it is necessary to install additional chemical scrubbers ahead of the absorber to remove impurities which might affect the finished product.

The gas enters to absorber "F" which is of the bubble tray type. Plate efficiencies are of a relatively low order and certain design changes from conventional arrangements are necessary to insure proper time and efficiency of contact. The column operates at an average pressure of 3 pounds per square inch gauge and residue gas passes through a mist extractor and directly to the atmosphere at the top. The best absorption temperatures for CO_2 extraction is from 90 to 120°. The temperature may advantageously run high, since reaction velocity increases with increase in temperature. Viscosity of the solution increases rapidly below 60° F.

From the absorber the rich solution goes through heat exchangers "G" where it is heated by returning lean solution from the reactivator "H". Due to temperatures involved and the fact that reactivation heat is supplied by heaters "I" in the base of the reactivator no preheater is required. The rich solution leaves the exchangers and enters the reactivator at about 200° F. The base temperature is maintained at 225° F. by steam heaters and column may be operated at from 1 to 3 pounds per square inch. The top temperature is controlled by means of a reflux condenser "J" and carried at approximately 100° F. to prevent carry over of solution and to con-

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dense steam generated from the water in the solution. Several reflux plates are provided above the feed plate. No agitation steam is required ordinarily.

The stripped or reactivated solution returns to the absorber through the heat exchangers and coolers "K" and enters the absorber at about 95° F. The CO_2 gas from the reactivator passes through an additional scrubber "L", as an extra precaution against carry over, and thence to the gas holder "M". The CO_2 gas in the holder must be at least 99.8 per cent pure to meet requirements of the finished liquid or solid product.

In the self-contained plant, blowers and circulating pumps as well as compressors are usually driven by steam turbines or engines. As stated before, the boiler installation required to generate the CO_2 will produce sufficient steam power to operate the plant. The exhaust steam from engines and turbines is carried at 20 pounds per square inch and is partially used in the reheaters for reactivating the solution. In the case of a plant using by-product gas as a source of CO_2 this energy for driving machinery and steam for reactivating the solution must be supplied from an outside source.

Compression Plant Methods

The absorption plant proper ends with the gas holder. There are any number of compression cycles for converting the CO_2 gas to liquid and solid. As mentioned previously, this phase of CO_2 production has had a predominance of attention and consequently has been thoroughly developed. The description or discussion of the many ramifications of design and operating practice is considered beyond the scope of this paper.

The following description is based on an efficient cycle which is fundamental and commonly used. A plant of this type is in use in conjunction with the absorption plant described above. The figures given are theoretical and are based upon a specific set of operating conditions.

Plate 2 Shows Flow Arrangement

"A" indicates the gas holder. As these gas holders are generally of the water sealed type the CO_2 gas is saturated with water vapor at the existing temperature and pressure. Due to low temperatures and high pressures encountered in the process it is necessary that the gas be thoroughly dehydrated.

Suction is taken from the holder by the centrifugal blower "B" which raises the pressure to about 5 pounds per square inch and discharges through a silica gel or equally efficient drying unit "C" and into the primary mixing pot "D". For purposes of explanation we will assume that 1 pound of CO_2 gas at 80° F. enters the mixing pot from the gas holder. On this basis the quantity of CO_2 at any point in the cycle will bear the same relationship to any given quantity entering the primary mixing pot as the figures shown do to 1 pound.

Then: the 1 pound of CO_2 at 80° F. from the gas holder is mixed with 0.853 pound of CO_2 at —69° F. This latter quantity is what is termed as "blow back" from the snow machine, and which will be explained in more detail farther on. Thus we have 1.853 pounds of CO_2 at 40° F. leaving the mixing pot and entering the suction of the first stage compressor "E". Here the pressure is raised to 75 pounds per square inch in ga and the temperature raised to 247° F. The heat of compression is dissipated in a water cooled intercooler and temperature reduced to 75° F. Then the 1.853 pounds of CO_2 at 75° F. enters the second mixing pot "F" where it is mingled with 0.481 pound of CO_2 at —62° F. returning from the second stage liquid cooler. Thus we have 2.334 pounds of CO_2 at 46° F. entering the suction of the second stage compressor "G". The second stage discharge pressure is 310 pounds per square inch ga and the temperature 220° F. This total quantity is again cooled to 75° F. in an intercooler and enters the third mixing pot "H" where 1.666 pounds of CO_2 at 3.6° F. is added. This latter is return gas from the first stage liquid cooler. We now have a total quantity of 4 pounds of CO_2 at 45° F. entering the third stage compressor "I" where its pressure is increased to 1,010 pounds per square inch in ga and a final temperature of 198° F.

The final pressure required will necessarily vary with water temperature available in order that the combination of pressure and temperature obtaining in the condensers will provide conditions under which liquefaction can take place.

Before the high pressure discharge gas is admitted to the condensers it is passed through a water cooled oil separator "J" to condense any vaporized lubricating oil carried over. Any such condensate is removed in the filters "K" and the gas passes into the condensers "L". Here the remaining sensible heat and the latent heat of evaporation is removed and the liquid temperature reduced to 80° F. The liquid accumulates in receiver "M" which in actual practice may also act as a storage or surge tank depending on the continuity of operation of the snow machine or of the liquid bleed off to cylinders. Liquid from the receiver may be taken out to fill cylinders at this point.

Leaving the liquid receiver are 4 pounds of CO_2 at 80° F., which corresponds to the original 1 pound of CO_2 gas entering the system. The pressure is reduced to approximately 800 pounds per square inch through the pressure reducing valve "N" before entering the first stage liquid cooler "O". This is a shell and tube type heat exchanger. From the liquid side 1.666 pounds are expanded back through the gas side. The remaining liquid is thus cooled to 17° F., leaving the first stage cooler. The gas is returned to the mixing pot ahead of the third stage compressor. The remaining 2.334 pounds of CO_2 entering the second stage liquid cooler "P" is similarly cooled to —40° F. at the outlet. The gas in this case amounts to 0.481 pound which is returned to the second mixing pot. The now remaining 1.853 pounds of liquid CO_2 is passed through the heat exchanger or subcooler "Q" where its temperature is further reduced to —50° F., by returning gas or "blow back" from the snow machine. This liquid is expanded into the snow machine "R" down to a pressure of about 10 pounds per square inch. During the expansion the temperature is reduced to —109° F. and 1 pound or 54 per cent in this case is converted into a flaky snow and the remaining 0.853 pound of gaseous CO_2 at —109° F. returns through the heater exchanger to the primary mixing pot.

The percentage of conversion to snow may be regulated by controlling inlet temperature to the snow machine. The snow machine consists of a square chamber with hydraulically operated pistons top and bottom. The upper piston is held stationary and the lower piston or ram compresses the snow into a solid cake. The upper piston is then withdrawn and the cake pushed out of the machine by the ram.

The conventional size of the finished cake is a 10-inch cube weighing about 50 to 60 pounds. Larger blocks may be made but the danger of creating internal voids and imperfect ice is thereby increased. The blocks are then wrapped in paper and taken to storage to be used when desired. The finished product when used is generally used in small pieces which are cut from the large block on a bandsaw.

The system described above readily shows the amount of cooling effect and energy required for compression to convert gaseous to solid CO_2. A common variation of this "blow back" system is one in which all cooling is supplied by an outside cycle such as an ammonia or separate CO_2 cycle. The total energy consumed is practically the same in either case. One advantage claimed for the blow back system is that discharge temperatures from compressors are materially reduced due to low suction temperatures resulting from mixing of cold return gas with new gas. This of course makes for more efficient operation of the compressors.

The pressure required to convert the snow to a solid of commercial density is about 600 pounds per square inch. The highest obtainable density is approximately 97 pounds per cubic foot. A maximum density of 90 pounds per cubic foot is generally used due to brittleness, difficulty of sawing, and greater tendency towards disintegration at higher densities.

The solid CO_2 is invariably wrapped or bagged in paper prior to storage. This insulates the block from the higher temperature of the atmosphere and prevents rapid subliming. It is estimated that, provided the blocks are stored in properly insulated spaces, the loss due to subliming over a period of two weeks will not exceed 10 per cent of the original weight. A storage container has been developed and used which is stated to have a loss of less than one-tenth of 1 per cent by weight per day. CO_2 gas has a heat conductivity of only 54 per cent of that of air. Thus a block of ice in still air will tend to insulate itself with its own gas. This fact is also made use of in refrigerating containers such as trucks or refrigerator cars which are usually surrounded by double walls through which the CO_2 gas escapes at atmosphere, thereby providing an efficient insulating layer between the space being refrigerated and the atmosphere.

At the present stage of development large scale usage of solid CO_2 is seasonal. For this reason a small plant, representing a correspondingly small investment, which can run continuously, with resulting operating economy can utilize efficient storage against peak demands.

The advent of solid CO_2 in commercial quantities has to some degree affected distribution methods of liquid CO_2. In order to eliminate excessive transportation costs of containers in the case of distributing liquid CO_2 the scheme has been devised of transporting the CO_2 from manufacturer to customer as a solid. It is then put into a special high pressure container where it is allowed to sublime under the influence of atmospheric temperature. The evolved gas may be used as such, for carbonating beverages for instance, or may be held under pressure and conducted around the solid where the latter's low temperature reliquefies it. The liquid is allowed to accumulate in a receiver where it is drawn off for any purpose desired.

The economy of this procedure is apparent when it is realized that the container for 50 pounds of liquid CO_2 weighs about 100 pounds. Thus the investment in cylinders, the transportation and handling charges of containers to customer and back again has kept the liquid product at a comparatively high price level.

The wholesale price of solid CO_2 ranges between 5 and 8 cents per pound generally. With further development of plant efficiencies this price level will be downwards. This will of course place solid CO_2 on a more equitable basis with water ice for general usage.

Production Costs

Production costs naturally vary considerably with conditions involved, and the extent of initial investment of the extraction plant. A 10-ton self contained plant similar to the one described above, operating continuously on 10 to 11 per cent CO_2 flue gas, and barring unusual conditions, should produce solid CO_2 for less than 1.5 cents per pound. This cost, assuming natural gas as fuel, is built up approximately as follows:

	Pct.
Fuel (natural gas)	13.0
Cooling water, boiler, and absorbent makeup	5.0
Lubricating oil, grease, and misc.	2.5
Labor	35.0
Maintenance	3.0
Depreciation and amortization of investment	27.0
Interest, insurance, taxes	13.5
Total	100.0

Administrative overhead and distribution expense is additive to the production cost.

In conclusion, I should like to again say that the application of the CO_2 recovery process to existing natural gasoline plants is feasible. In many cases a large part of the required equipment is already available, fuel plentiful and cheap, sites acquired, and personnel trained in the use of absorption and compression equipment. In any event, however, each problem presents its own individual points and should be dealt with accordingly.

Acknowledgement is made to the literature available on CO_2 generally and particularly to the work of J. C. Goosman.

JERGUSON

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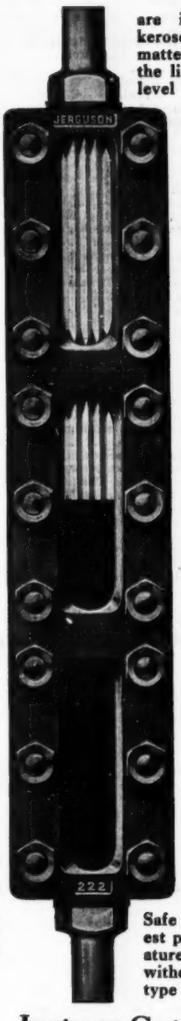

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BUREAU OF MINES STATISTICS FOR THE MONTH OF JANUARY

STOCKS OF CRUDE PETROLEUM
(Thousands of barrels of 42 U. S. gallons)

	Jan. 31, 1932	Dec. 31, 1931	Jan.31, 1931
EAST OF CALIFORNIA:			
At refineries by location:			
East Coast: Domestic	8,073	7,709	9,819
Foreign	3,157	3,694	3,828
Appalachian	3,001	1,956	2,564
Indiana, Illinois, Kentucky, Michigan	3,940	3,553	2,579
Oklahoma, Kansas and Missouri	5,523	5,537	5,138
Texas: Inland	1,711	1,954	1,406
Gulf Coast: Domestic	6,438	6,453	7,440
Foreign	142	137	393
Arkansas and inland Louisiana	481	540	574
Louisiana Gulf Coast: Domestic	2,427	2,427	5,453
Foreign	749	663	833
Rocky Mountain	1,952	1,923	1,758
Total	36,594	36,546	41,785
At refineries by origin:			
Pennsylvania Grade	1,776	1,689	2,257
Other Appalachian (including Kentucky)	664	690	740
Lima, northeast Indiana, Michigan	215	261	119
Illinois-southwest Indiana	147	121	89
North Louisiana and Arkansas	1,497	1,734	3,836
West Texas and southeast New Mexico	3,567	3,257	4,808
Oklahoma, Kansas, North Texas, etc.	17,630	17,554	16,350
Gulf Coast: Grade A	1,314	1,523	3,565
Grade B	3,978	3,482	3,209
Rocky Mountain	1,758	1,741	1,753
California	.....	.....	5
Foreign	4,048	4,494	5,054
Total	36,594	36,546	41,785
Pipe line and tank farm:			
Pennsylvania Grade	5,017	4,928	5,633
Other Appalachian (including Kentucky)	1,040	1,188	949
Lima, northeast Indiana, Michigan	1,644	1,560	1,547
Illinois-southwest Indiana	9,950	9,790	10,205
North Louisiana and Arkansas	15,739	16,980	19,865
West Texas and southeast New Mexico	34,282	35,436	44,257
Oklahoma, Kansas, North Texas, etc.	179,108	179,548	191,524
Gulf Coast	13,433	13,315	18,444
Rocky Mountain	23,394	23,275	25,400
Total	283,607	286,020	317,854
Total refinery, pipe line and tank farm	320,201	322,566	359,639
Producers' stocks	6,750	6,550	6,350
Total crude east of California	326,951	329,116	365,989
CALIFORNIA: Light	42,431	42,114	43,153
Total crude	369,382	371,230	409,142

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN UNITED STATES*
(Thousands of barrels of 42 U. S. gallons)

	Jan., 1932	Dec., 1931	Jan., 1931
Gasoline	495	1,262	1,189
Natural gasoline	73	73	136
Kerosene	...	...	46
Gas oil	...	95	363
Diesel oil	...	...	...
Fuel oil	...	...	1
Lubricants	2	10	12
Asphalt	1	1	1
Miscellaneous	1	...	...
Total	572	1,441	1,748

*Compiled by E. T. Knudsen of the San Francisco office of the Bureau of Mines.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	Jan., 1932	Dec., 1931	Jan., 1931
Oil	643	744	487
Gas	124	129	202
Dry	197	240	441
Total	964	1,113	1,130

*From The Oil and Gas Journal and California office of the American Petroleum Institute.

RUNS TO STILLS AND OUTPUT OF REFINERIES, JANUARY, 1932
(Thousands of barrels of 42 U. S. gallons.)

INPUT	Crude oil: Domestic	Crude oil: Foreign	Crude oil: Total	Unfinished oils rerun	Natural gasoline	Total input
East Coast	10,261	3,203	13,464	339	139	13,942
Appalachian	2,650	.....	2,650	186	31	2,867
Ind., Ill., Ky., etc.	8,182	.....	8,182	763	226	9,171
Okla., Kans., Mo.	7,538	.....	7,538	250	408	8,196
Texas inland	3,992	.....	3,992	124	275	4,391
Texas Gulf	12,488	57	12,545	1,389	271	14,205
Ark. and La. inland	1,623	.....	1,623	289	74	1,986
Louisiana Gulf	3,148	84	3,232	15	74	3,321
Rocky Mountain	1,258	.....	1,258	225	90	1,573
California	14,231	.....	14,231	1,633	*819	16,682
Total	65,371	3,344	68,715	5,263	2,397	76,375

OUTPUT	Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Lubricants	Wax (thous. of lbs.)
East Coast	5,928	558	1,001	4,232	662	21,280
Appalachian	1,359	258	38	235	343	7,280
Ind., Ill., Ky., etc.	4,815	222	797	1,039	236	2,240
Okla., Kans., Mo.	4,238	607	742	1,329	204	1,960
Texas inland	2,348	235	181	1,320	6	280
Texas Gulf	5,980	972	1,365	3,344	469	1,680
Ark. and La. inland	665	61	139	586	18	.....
Louisiana Gulf	1,232	366	349	909	15	6,720
Rocky Mountain	520	42	54	172	25	2,240
California	5,722	537	1,626	6,063	114	.....
Total	33,007	3,798	6,291	19,239	2,092	43,680

OUTPUT (Cont.)	Coke (tons)	Asphalt (tons)	Road oil	Still gas	Miscellaneous	Unfinished products	Shortage
East Coast	12,900	57,800	8	634	30	221	248
Appalachian	2,100	4,400	51	182	24	233	78
Ind., Ill., Ky., etc.	57,300	17,300	4	555	45	1,003	60
Okla., Kans., Mo.	34,900	300	26	383	8	370	253
Texas inland	7,400	.....	.....	89	10	52	201
Texas Gulf	21,400	13,300	5	768	2	911	201
Ark. and La. inland	200	4,900	.....	38	14	367	70
Louisiana Gulf	4,900	11,100	.....	87	3	227	83
Rocky Mountain	10,600	.....	27	64	4	270	33
California	2,200	22,000	33	507	119	1,433	398
Total	144,900	131,100	154	3,207	259	5,087	1,625

*Includes 118,000 bbls. run through pipe lines.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM AND MAJOR REFINED PRODUCTS*
(Thousands of barrels of 42 U. S. gallons)

	Jan., 1932 Ttl.	Jan., 1932 Dly. av.	Dec., 1931 Ttl.	Dec., 1931 Dly. av.	Jan., 1931 Ttl.	Jan., 1931 Dly. av.
CRUDE PETROLEUM:						
Imports	2,047	66	4,315	139	4,352	140
From Mexico	572	19	352	11	245	8
From Venezuela	1,268	41	2,064	67	2,600	84
From Colombia	85	2	1,775	57	1,280	41
From other countries	122	4	123	4	228	7
Exports:						
Domestic crude oil	1,633	53	1,071	35	1,919	62
To Canada	1,127	37	731	24	1,365	44
To other countries	503	16	340	11	554	18
Shipments	3	..	...	..	...	..
REFINED PRODUCTS:						
Gasoline:						
Imports	1,224	39	793	26	1,116	36
Exports†	3,422	110	2,691	87	4,903	158
To United Kingdom	1,100	35	1,056	34	1,784	58
To France	697	22	84	3	777	25
To Canada	120	4	159	5	176	6
To other countries	1,382	45	1,241	40	1,996	64
Shipments	123	4	151	5	170	5
Kerosene:						
Exports	1,214	39	641	21	1,293	42
To China	149	5	26	1	202	6
To United Kingdom	334	11	186	6	333	11
To other countries	701	22	428	14	740	24
Shipments	30	1	1	..	18	1
Gas oil and fuel oil:						
Imports	2,302	74	2,084	67	2,471	80
Exports	1,545	50	1,949	63	2,980	96
To Japan	348	11	403	13	608	20
To Chile	143	5	145	5	405	13
To other countries	1,026	33	1,162	37	1,722	56
Shipments	30	1	239	8	245	8
Lubricants:						
Exports	616	20	597	19	687	22
To United Kingdom	122	4	90	3	62	2
To France	115	4	164	5	212	7
To other countries	371	12	339	11	408	13
Shipments	8	..	4	..	5	..
Wax (thousands of pounds):						
Imports	4,586	148	6,428	207	2,645	85
Exports	22,969	741	38,667	1,247	22,063	712
To United Kingdom	6,781	219	5,948	192	5,798	187
To Italy	2,202	71	3,329	107	2,627	85
To other countries	13,983	451	29,382	948	13,635	440
Shipments	3	..	8	..	3	..

*From Bureau of Foreign and Domestic Commerce. †Includes benzol—270 bbls. in January.

SUPPLY AND DEMAND OF ALL OILS
(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

	Jan., 1932	Dec., 1931	Jan. 1931
NEW SUPPLY:			
Domestic petroleum:			
Crude petroleum	66,384	73,174	65,733
Daily average	2,158	2,360	2,120
Natural gasoline	3,342	3,476	4,140
Benzol	125	133	184
Total production	70,351	76,783	70,057
Daily average	2,269	2,477	2,260
Imports:			
Crude petroleum	2,047	4,315	4,352
Refined products	3,550	2,903	3,601
Total new supply, all oils	75,948	84,001	78,011
Daily average	2,450	2,710	2,516
Increase in stocks, all oils	*504	3,355	*4,097
DEMAND:			
Total demand	76,452	80,646	82,108
Daily average	2,466	2,601	2,649
Exports:			
Crude petroleum	1,633	1,071	1,919
Refined products	6,989	6,102	10,091
Domestic demand	67,830	73,473	70,098
Daily average	2,188	2,370	2,261
Excess of daily average domestic prod. over domestic demand	81	107	11
STOCKS (end of month):			
Crude petroleum:			
East of California	326,951	329,116	365,989
California‡	42,431	‡42,114	43,153
Total crude	369,382	371,230	409,142
Natural gasoline	2,934	2,818	3,252
Refined products‡	359,714	247,936 / ‡258,486	249,738
GRAND TOTAL STOCKS, ALL OILS	632,030	621,984 / ‡632,534	662,132
Days' supply	256	239	258
Bunker oil (included above in domestic demand)	3,031	3,447	3,544

*Decrease. †Deficiency. ‡California heavy crude and residual fuel included. §For comparison with 1932.

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, JANUARY, 1932*

	Completions: Oil	Gas	Dry	Total initial prod. (bbls.)	Average initial prod. (bbls.)	Drlg. Jan.31
Texas	409	17	71	66,200	200	671
East Texas	325	0	9	36,300	100	294
Gulf Coast	21	2	15	19,600	900	45
West Texas	8	0	3	1,900	200	83
California	16	0	20	8,800	600	124
Kettleman Hills	1	0	0	1,600	1,600	12
Long Beach	6	0	4	700	100	10
Playa Del Rey	1	0	2	100	100	2
Oklahoma	27	11	25	56,500	2,100	250
Oklahoma County	9	0	0	48,800	5,400	45
Pottawatomie-Seminole Counties	2	0	0	5,600	2,800	19
New Mexico	3	1	3	8,600	2,900	47
Lea County (Hobbs)	2	0	0	8,200	4,100	4
Other states	188	95	78	38,400	200	941
Total United States	643	124	197	178,500	300	2,033

*From The Oil and Gas Journal and California office of the American Petroleum Institute.

GASOLINE PRODUCTION BY THE VARIOUS METHODS—JANUARY, 1932
(Thousands of barrels of 42 U. S. gallons)

	Straightrun: Total	Straightrun: *%	Straightrun: †%	Cracked: Total	Cracked: *%	Cracked: †%	Natural gasoline: Total	Natural gasoline: †%	Gasoline—: Total	Gasoline—: *%
East Coast	2,668	19.3	45.2	3,131	23.3	52.8	129	2.2	5,928	43.1
Appalachian	693	26.1	51.0	635	24.0	46.7	31	2.3	1,359	50.1
Indiana, Illinois, etc.	2,189	26.3	45.5	2,400	29.3	49.8	226	4.7	4,815	56.1
Oklahoma, Kansas, Missouri.	2,327	29.5	52.6	1,602	21.3	37.8	408	9.6	4,238	50.8
Texas inland	1,392	32.4	57.5	681	17.0	30.3	275	12.2	2,248	49.4
Texas Gulf	2,683	21.4	44.9	3,026	24.1	50.6	271	4.5	5,980	45.5
Arkansas and La. inland	362	22.3	54.5	229	14.1	34.4	74	11.1	665	36.4
Louisiana Gulf	613	19.0	49.8	545	16.8	44.2	74	6.0	1,232	35.8
Rocky Mountain	383	30.4	46.7	347	27.6	42.3	90	11.0	820	58.0
California	3,519	24.7	61.5	1,384	9.7	24.3	819	14.3	5,722	34.4
Total	16,629	24.2	50.4	13,981	20.3	42.3	2,397	7.3	133,007	44.5

*Per cent of crude run. †Per cent of total gasoline output.

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons)

	January, 1932		December, 1931		January, 1931	
CRUDE PETROLEUM:	Total	Daily av.	Total	Daily av.	Total	Daily av.
Runs to stills: Domestic	65,371	2,109	69,374	2,238	65,767	2,122
Foreign	3,344	108	3,347	108	4,440	143
Total	68,715	2,217	72,721	2,346	70,207	2,265
Imports	2,047	66	4,315	139	4,353	140
Exports	1,633	53	1,071	35	1,919	62
MOTOR FUEL:						
Production	33,535	1,082	36,051	1,163	32,708	1,055
Imports	1,224	39	793	26	1,116	36
Exports	3,422	110	2,691	87	4,903	158
Stocks	*57,362	...	*52,870	...	42,604	...
Domestic demand	26,845	866	30,529	985	26,415	852
KEROSENE:						
Production	3,798	123	3,713	120	3,560	115
Imports	...	...	...	...	1	...
Exports	1,214	39	641	21	1,293	42
Stocks	5,304	...	5,332	...	6,555	...
Domestic demand	2,612	84	3,358	108	2,596	84
GAS OIL AND DISTILLATE FUELS:						
Production	6,291	203	6,711	216	7,572	244
Stocks†	16,059	...	18,526	...	14,450	...
RESIDUAL FUEL OILS:						
Production	19,239	621	20,476	661	21,026	678
Stocks†	116,901	...	117,330	...	118,763	...
LUBRICANTS:						
Production	2,092	67	2,049	66	2,441	79
Imports	3	...	3	...	3	...
Exports	616	20	597	19	687	22
Stocks	9,478	...	9,511	...	11,013	...
Domestic demand	1,512	49	1,366	44	1,715	55
WAX (thousands of lbs.):						
Production	43,680	1,409	45,360	1,463	42,560	1,373
Imports	4,586	148	6,428	207	2,645	85
Exports	22,969	741	38,667	1,247	22,063	712
Stocks	188,476	...	180,843	...	233,044	...
Domestic demand	17,664	570	16,216	523	22,690	732
COKE (short tons):						
Production	144,900	4,674	167,700	5,410	159,000	5,129
Stocks	1,460,000	...	1,511,600	...	1,032,300	...
ASPHALT (short tons):						
Production	131,100	4,229	131,600	4,245	147,300	4,752
Imports (natural)	1,000	32				
Stocks	308,400	...	301,800	...	295,000	...
ROAD OIL:						
Production	154	5	84	3	102	3
Stocks	460	...	332	...	284	...
STILL GAS:						
Production	3,207	103	‡2,916	94	‡2,216	71
MISCELLANEOUS:						
Production	259	8	247	8	265	9
Stocks	721	...	785	...	578	...

*Includes terminal and transit stocks, pipe line stocks and stocks of motor blends held at natural gasoline plants. †Includes heavy crude in California. ‡East of California.

PRODUCTION OF CRUDE PETROLEUM BY STATES

(Thousands of barrels of 42 U. S. gallons)

	Jan., 1932		Dec., 1931		Jan., 1931	
	Ttl.	Dly. av.	Ttl.	Dly. av.	Ttl.	Dly.av.
Arkansas	983	32	963	31	1,539	50
California:						
Kettleman Hills	1,868	60	1,851	60	691	22
Long Beach	2,415	79	2,365	76	2,877	93
Santa Fe Springs	2,024	65	1,970	64	2,223	72
Rest of State	9,225	297	9,375	302	10,695	345
Total California	15,532	501	15,561	502	16,486	532
Colorado	114	4	126	4	139	5
Illinois	431	14	445	14	469	13
Indiana:						
Southwestern	69	2	68	2	69	2
Northeastern	3	..	3	..	4	..
Total Indiana	72	2	71	2	73	2
Kansas	2,954	95	3,183	103	3,102	100
Kentucky	498	16	514	17	546	17
Louisiana:						
Gulf Coast	879	29	923	30	842	28
Rest of State	791	25	835	27	1,244	40
Total Louisiana	1,670	54	1,758	57	2,086	68
Michigan	471	15	476	15	261	9
Montana	175	6	212	7	256	8
New Mexico	1,170	38	1,313	42	1,185	38
New York	322	11	338	11	285	9
Ohio:						
Central and eastern	292	9	344	11	391	13
Northwestern	84	3	89	3	105	3
Total Ohio	376	12	433	14	496	16
Oklahoma:						
Oklahoma City	3,739	120	5,245	169	2,588	83
Seminole	3,900	126	4,359	141	5,002	161
Rest of State	6,160	199	7,382	238	7,320	236
Total Oklahoma	13,799	445	16,987	548	14,910	480
Pennsylvania	1,062	34	1,129	36	925	30
Tennessee	1	..	....	..	....	..
Texas:						
Gulf Coast	3,276	105	3,537	114	4,686	151
West Texas	5,391	174	5,819	188	7,887	254
East Texas	9,854	318	11,090	358	101	3
Rest of State	7,216	233	7,698	248	8,665	280
Total Texas	25,737	830	28,144	908	21,339	688
West Virginia	333	11	382	12	379	12
Wyoming:						
Salt Creek	727	23	686	22	803	26
Rest of State	457	15	453	15	514	17
Total Wyoming	1,184	38	1,139	37	1,317	43
Total United States	66,884	2,158	73,174	2,360	65,733	2,120

PRODUCTION OF CRUDE PETROLEUM BY FIELDS

(Thousands of barrels of 42 U. S. gallons)

FIELD:	January, 1932		December, 1931		January, 1931	
Appalachian:	Total	Daily av.	Total	Daily av.	Total	Daily av.
Pennsylvania grade	1,858	60	2,026	65	1,779	57
Other (inc. Kentucky)	650	21	681	22	747	24
Lima-N.E. Ind.-Mich.	558	18	568	18	370	12
Ill.-S.W. Ind.	500	16	513	16	478	15
Mid-Continent:						
N. La. and Ark.	1,774	57	1,798	58	2,783	90
West Texas-S.E. New Mexico	6,528	211	7,091	239	9,024	291
Other (Okla., Kans., N. Tex., etc.)	33,823	1,091	35,958	1,257	26,778	863
Gulf Coast	4,155	134	4,460	144	5,528	179
Rocky Mountain	1,506	49	1,518	49	1,760	57
California	15,532	501	15,561	502	16,486	532
Total	66,884	2,158	73,174	2,360	65,733	2,120

SHIPMENTS OF MOTOR FUEL BY PIPE LINES

(Thousands of barrels of 42 U. S. gallons)

	Jan., 1932	Dec., 1931	Jan., 1931
Motor fuel turned into lines	2,123	1,937	179
Motor fuel delivered from lines	1,885	1,721	162
Shortage	7	7	...
Stocks in lines and working tanks end of month	1,193	*962	570

*1,149,000 bbls. transferred to stocks at bulk terminals.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM EAST OF CALIFORNIA

(Thousands of barrels of 42 U. S. gallons)

Domestic petroleum by fields of origin:	January, 1932		December, 1931		January, 1931	
	Total	Daily av.	Total	Daily av.	Total	Daily av.
Appalachian						
Pennsylvania Grade	1,682	54	1,860	60	1,770	57
Other (inc. Kentucky)	824	27	559	18	754	24
Lima-N. E. Ind.-Mich.	520	17	371	12	245	8
Ill-S. W. Ind.	315	10	537	17	527	17
Mid-Continent:						
N. La. and Ark.	3,236	104	2,977	96	3,519	114
W. Tex.-S. E. N. Mex.	7,381	238	8,389	271	10,625	343
Other (Okla., Kans., N. Tex., etc.)	34,042	1,098	35,791	1,154	28,443	917
Gulf Coast	3,753	121	4,731	153	5,598	181
Rocky Mountain	1,318	43	1,321	43	1,462	47
California	...	...	...	...	...	...
Total demand	53,071	1,712	56,536	1,824	52,943	1,708
Exports	940	30	602	20	1,067	34
Domestic demand	52,131	1,682	55,934	1,804	51,876	1,674
Foreign petroleum	2,493	80	3,414	110	3,152	101
Total domestic demand east of California	54,624	1,762	59,348	1,914	55,028	1,775

PRODUCTION OF MOTOR FUEL

(Thousands of barrels of 42 U. S. gallons)

	Jan., 1932		Dec., 1931		Jan., 1931	
	Total	Daily av.	Total	Daily av.	Total	Dly.av.
Straightrun gasoline	16,629	536	17,812	575	15,638	504
Cracked gasoline	13,981	451	15,055	486	13,285	429
Natural gasoline:						
Blended at refineries	2,279	74	2,618	84	3,169	102
Blended at plants*	3	...	5	...	13	1
Run through pipe lines†	118	4	78	3	69	2
Jobbers, exports, etc.	400	13	350	11	350	11
Benzol produced‡	125	4	133	4	184	6
Total motor fuel	33,535	1,082	36,051	1,163	32,708	1,055

*East of California. †To refineries in California. ‡Estimated.

PRODUCTION AND DISTRIBUTION OF NATURAL GASOLINE

(Thousands of barrels of 42 U. S. gallons)

	Jan., 1932		Dec., 1931		Jan., 1931	
	Total	Daily av.	Total	Daily av.	Total	Dly.av.
Production	3,342	108	3,476	112	4,140	134
Decrease in all stocks	.....	...	.....	...	.....	...
Total	3,342	108	3,476	112	4,140	134
Blended at refineries	2,279	74	2,618	84	3,169	102
Blended at plants east of California	3	...	5	...	13	1
Run through pipe lines in California	118	4	78	3	69	2
Jobbers, exports, etc.	400	13	350	11	350	11
Increase in all stocks	116	4	232	8	152	5
Balance	426	13	193	6	387	13
Total	3,342	108	3,476	112	4,140	134

STOCKS HELD BY REFINING COMPANIES, JANUARY 31, 1932

(Thousands of barrels of 42 U. S. gallons)

	Gasoline				Gas oil and distillate fuels	Residual fuel oils
	At refineries	At bulk terminals*	Total	Kerosene		
East Coast	5,299	9,631	14,930	858	3,387	4,622
Appalachian	1,735	328	2,063	235	625	646
Indiana, Illinois, Kentucky, etc.	4,401	2,856	7,257	598	1,974	3,013
Oklahoma, Kansas, Missouri	3,660	946	4,606	445	2,055	2,302
Texas inland	2,346	53	2,399	112	637	3,083
Texas Gulf	6,664	176	6,840	943	2,254	6,289
Arkansas and Louisiana inland	169	2	171	23	134	713
Louisiana Gulf	1,241	389	1,630	158	504	2,783
Rocky Mountain	2,190	...	2,190	356	327	417
California	14,077	(†)	14,077	1,576	4,162	‡93,033
Total	41,782	14,381	56,163	5,304	16,059	116,901

	Lubricants	Wax (thousands of lbs.) Crude scale	Refined	Total	Coke (tons)
East Coast	3,026	31,995	25,712	57,707	15,600
Appalachian	1,136	19,439	2,399	21,838	9,400
Indiana, Illinois, Kentucky, etc.	1,009	20,873	1,388	22,261	196,900
Oklahoma, Kansas, Missouri	771	2,234	2,127	4,361	163,700
Texas inland	77	....	213	213	133,700
Texas Gulf	2,099	1,418	11,139	12,557	584,300
Arkansas and Louisiana inland	39	.....	.....	.....	100
Louisiana Gulf	108	34,057	2,181	36,238	113,100
Rocky Mountain	253	31,673	1,628	33,301	139,500
California	960	.....	.....	.....	103,700
Total	9,478	141,689	46,787	188,476	1,460,000

	Asphalt (tons)	Road oil	Miscellaneous products	Unfinished oils	Natural gasoline
East Coast	104,100	14	65	7,433	22
Appalachian	20,400	61	64	1,537	9
Indiana, Illinois, Kentucky, etc.	75,600	11	217	6,572	61
Oklahoma, Kansas, Missouri	2,900	110	29	3,289	42
Texas inland	100	...	5	1,151	6
Texas Gulf	12,300	12	8	10,701	207
Arkansas and Louisiana inland	24,600	...	7	636	5
Louisiana Gulf	30,000	...	7	2,045	7
Rocky Mountain	2,200	115	52	1,598	...
California	37,200	137	267	§8,646	1,766
Total	309,400	460	721	43,608	2,125

*Includes domestic gasoline in water-borne transit to terminals. Corresponding data for December 31, 1931, as follows: East Coast, 8,776,000 bbls.; Appalachian, 394,000 bbls.; Indiana, Illinois, etc., 3,043,000 bbls.; Oklahoma, Kansas, Missouri, 759,000 bbls.; Texas inland, 57,000 bbls.; Texas Gulf, 109,000 bbls.; Arkansas and Louisiana inland, 106,000 bbls.; Louisiana Gulf, 520,000 bbls.; United States, 13,764,000 bbls. †Included with "at refineries." ‡Includes heavy crude. §Includes 4,415,000 bbls. tops.

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

	Month of January		Six mo. ending December	
Petroleum:	1931	1932	1930	1931
Crude ..... Bbls.	1,913,860	1,630,342	11,612,007	13,632,206
Crude ..... $	3,228,157	1,528,075	15,656,062	10,176,831
Total refined petroleum .. Bbls.	5,357,793	6,615,869	56,817,425	44,239,644
Total refined petroleum ..... $	25,829,822	15,007,507	197,069,747	104,537,026
Gasoline, naphtha and other light products ..... Bbls.	4,662,224	3,303,312	29,759,384	20,864,700
	$ 13,764,610	7,599,885	112,457,388	46,865,491
Oils, illuminating ..... Bbls.	1,275,058	1,184,273	7,744,316	6,515,030
Oils, illuminating ..... $	3,439,358	2,269,384	32,326,037	16,792,144
Gas and fuel ..... Bbls.	2,734,587	1,380,339	14,741,196	12,829,973
Gas and fuel ..... $	2,531,566	1,027,607	15,497,349	11,020,377
Lubricating ..... Bbls.	676,181	602,483	4,503,216	3,976,470
Lubricating ..... $	5,966,311	3,908,683	39,932,593	29,764,400
Other refined petroleum .. Bbls.	9,743	10,837	69,313	53,471
Other refined petroleum ..... $	127,977	91,489	856,330	594,614
Paraffin wax ..... Lbs.	22,069,479	22,966,071	157,004,000	155,112,525
Paraffin wax ..... $	691,874	648,084	5,233,306	4,350,783

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for January

Runs

	Month (bbls.)	Dy.av. (bbls.)
Prairie P. L. Co.*	579,700	18,700
Gulf P. L. Co.	1,524,401	49,174
Texas P. L. Co.	543,721	17,539
Magnolia P. L. Co.	1,579,826	50,963
Empire P. L. Co.	2,010,159	64,844
Cosden P. L. Co.	613,381	19,786
Stanolind P. L. Co.*	3,162,000	102,000
Oklahoma P. L. Co.	2,069,871	66,770
Other lines	4,774,000	154,000
Total January	16,857,069	543,776
Total December	19,796,955	638,611
Difference	2,939,886	94,835

Shipments

Prairie P. L. Co.	1,862,336	60,075
Gulf P. L. Co.	1,792,661	57,828
Texas P. L. Co.	643,195	20,748
Magnolia P. L. Co.	965,558	31,147
Empire P. L. Co.	1,870,655	60,344
Cosden P. L. Co.	688,035	22,195
Stanolind P. L. Co.	3,335,755	107,605
Oklahoma P. L. Co.	2,091,388	67,464
Other lines*	3,007,000	97,000
Total January	16,256,583	524,406
Total December	19,355,129	624,359
Difference	3,098,546	99,953

Stocks

	Bbls.
Prairie O. & G. Co.*	35,341,000
Gulf P. L. and Gypsy Oil Co.	7,736,629
The Texas Company	3,664,036
Magnolia Petroleum Co.	8,474,950
Empire P. L. Co.	4,729,405
Mid-Continent Petroleum Corp.	3,331,484
Stanolind Crude Oil Pur. Co.*	16,250,000
Oklahoma P. L. Co.	1,278,698
Carter Oil Co.	6,141,813
Other lines*	15,166,000
Total January	102,124,015
Total December	102,072,255
Difference	52,760

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF FEBRUARY

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for January and February:

	Jan., '32	Feb., '32
Nat. Transit	132,346.98	126,753.83
S. W. Pa. P. L.	64,858.40	58,939.24
Eureka P. L.	264,733.46	242,556.95
Buckeye P. L. (Macksburg)	231,436.17	220,174.62
Buckeye P. L. (Cleveland)	12,765.55	10,650.06
Buckeye P. L. (Lima, etc.)	70,902.03	69,769.97
Indiana P. L.	2,957.69	2,432.39
N. Y. Transit	42,434.50	42,479.85
Tide Water P. L.	21,527.15	23,346.91
Pure Oil	343,184.55	291,502.56
Stoll Oil Ref.	61,955.78	60,332.05
Bradford Tran.	409,404.66	358,619.95
Ashland Ref.	.....	101,901.07
Total	1,658,531.92	1,609,459.55
Daily avg.	53,501.03	55,498.61

Petroleum Deliveries

The following table exhibits the shipments or regular deliveries in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan., '32	Feb., '32
Nat. Transit	546,544.24	521,574.03
S. W. Pa. P. L.	327,706.71	393,740.87
Eureka P. L.	266,908.73	234,915.43
Buckeye P. L. (Macksburg)	247,543.60	197,422.31
Buckeye P. L. (Cleveland)	1,710.80	1,468.37
Buckeye P. L. (Lima, etc.)	1,483,164.35	1,256,390.69
Indiana P. L.	720,776.96	684,053.57
Southern P. L.	45,091.84	29,866.72
N. Y. Transit	160,691.41	164,942.57
Northern P. L.	167,659.81	149,660.95
Tide Water P. L.	583,162.04	378,538.58
Pure Oil	322,591.72	328,613.38
Bradford Tran.	604,570.61	252,938.42
Tuscarora	305,988.46	291,210.02
Total	5,783,109.32	4,925,330.92
Daily avg.	186,551.91	169,856.24

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of January and February:

	Jan., '32	Feb., '32
Nat. Transit	708,300.22	714,820.78
S. W. Pa. P. L.	452,222.36	404,242.41
Eureka P. L.	1,218,191.97	1,260,183.19
Buckeye P. L. (Macksburg)	265,000.88	286,436.07
Buckeye P. L. (Cleveland)	38,126.48	47,411.90
Buckeye P. L. (Lima, etc.)	2,936,849.21	2,956,771.87
Indiana P. L.	520,692.84	513,552.31
Cumberland P. L.	64,500.81	.....
Southern P. L.	258,415.23	241,444.27
N. Y. Transit	198,406.61	195,495.84
Northern P. L.	324,194.85	306,733.15
Tide Water P. L.	974,418.35	863,042.42
Pure Oil	887,230.61	889,617.38
Tuscarora	10,920.31	10,806.74
Bradford Trans.	156,443.22	238,781.30
Total	9,023,914.45	8,974,350.13
Decrease	95,118.08	49,564.32

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of January and February, showing gross stocks of the above fields:

	Jan., '32	Feb., '32
Penna.	3,219,630.21	3,178,872.84
Lima	602,805.09	599,253.26
Kentucky	74,908.32	10,011.59
Mid-Continent	4,306,150.37	4,329,220.63
Illinois	.....	22,590.52
Michigan	820,420.46	834,401.29
Total	9,023,914.45	8,974,350.13

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1929	1930	1931	1932
Jan.	51,749	75,907	53,939	53,501
Feb.	51,833	79,256	55,163	55,498
Mar.	54,252	76,658	54,331	.....
April	58,444	84,536	54,914	.....
May	59,902	70,546	55,344	.....
June	58,333	75,430	54,110	.....
July	66,087	68,921	50,722	.....
Aug.	66,087	54,291	51,502	.....
Sept.	67,315	56,595	61,345	.....
Oct.	76,093	58,179	65,595	.....
Nov.	74,831	52,332	59,819	.....
Dec.	74,561	53,999	61,835	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1929	1930	1931	1932
Jan.	165,721	217,623	175,369	186,551
Feb.	159,387	224,355	183,494	169,856
Mar.	161,474	228,846	189,508	.....
April	169,737	241,845	191,450	.....
May	184,281	248,383	199,247	.....
June	185,404	234,401	221,155	.....
July	194,763	207,094	211,632	.....
Aug.	194,946	205,506	224,166	.....
Sept.	201,214	193,999	217,537	.....
Oct.	191,847	157,675	210,831	.....
Nov.	202,743	146,638	196,425	.....
Dec.	186,257	143,001	176,241	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1930	1931	1932
Jan.	12,220,045	11,831,092	9,023,914
Feb.	13,991,561	11,506,489	8,974,350
Mar.	13,247,217	11,012,162	.....
April	13,233,961	11,044,481	.....
May	13,052,953	10,728,239	.....
June	13,396,855	9,903,349	.....
July	13,268,562	9,569,849	.....
Aug.	13,047,051	9,192,457	.....
Sept.	12,812,018	8,492,431	.....
Oct.	12,437,553	8,417,694	.....
Nov.	11,851,380	8,830,386	.....
Dec.	11,751,952	9,119,032	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, March 1	549,565.81
Runs from wells	459,214.59
Regular deliveries	186,010.30
Other deliveries	207,879.43

The amount of Illinois oil run by the Tide Water Pipe Co. in February was 23,346.91 bbls. Deliveries were none. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1932—	Runs	Deliveries
January	500,177.12	246,634.10
February	482,561.50	186,010.30
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,638.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.12
July	520,009.38	289,219.03
August	476,623.56	393,231.06
September	492,183.83	323,012.50
October	498,124.13	325,834.93
November	470,302.63	281,258.48
December	515,771.28	306,623.19

Tide Water Pipe Co., Ltd., also delivered in February, 496,060.73 bbls. of Oklahoma oil.

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1931—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	31,129	238,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	105,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	20,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903
August	32,613	15,581	91,742	22,387	25,741	188,064	4,161	2,516	.....	3,162	9,839	197,903
September	27,067	7,267	106,867	20,099	22,967	184,267	4,833	8,333	.....	.....	13,166	197,433
October	53,710	14,484	100,774	26,742	40,645	236,355	6,097	6,871	2,097	1,833	16,903	253,258
November	48,033	28,800	51,667	28,600	12,967	170,067	3,933	16,833	3,033	1,367	19,166	189,233
December	20,258	16,806	121,807	31,645	34,258	224,774	1,968	4,355	.....	.....	6,323	231,097
January	19,161	8,161	104,065	24,194	34,903	190,484	4,871	7,226	2,096	1,484	15,677	206,161

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1931—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903
August	3,452	.....	16,419	7,419	4,290	31,580	.....	.....	.....	.....	968	32,548
September	4,267	3,667	12,933	4,699	7,367	32,933	.....	.....	.....	.....	4,000	36,933
October	2,355	1,129	19,290	16,709	9,333	48,806	.....	.....	.....	.....	3,322	52,128
November	1,000	.....	22,800	11,567	.....	35,367	.....	.....	.....	.....	3,366	38,733
December	3,161	.....	22,484	8,339	6,032	40,016	.....	.....	.....	.....	7,742	48,258
January	3,871	1,710	14,483	3,774	5,710	29,548	.....	.....	.....	.....	.....	29,548

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1931—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
February:	Month	14,930,932	13,531,980	18,957,571	3,341,016	1,402,492	1,981,616	2,747,024	3,129,000	60,021,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,143,629
March:	Month	16,364,842	14,877,687	23,453,619	3,498,598	1,469,245	2,061,574	2,898,035	3,374,000	68,747,603
	Daily average	527,898	536,377	724,816	112,858	47,395	66,502	93,485	108,839	2,217,648
April:	Month	15,803,541	14,815,990	26,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,384,239
	Daily average	526,785	559,255	896,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,332,867	28,768,654	3,341,366	1,446,274	2,232,568	3,098,419	3,190,000	75,800,124
	Daily average	530,612	559,157	926,086	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,678,200	29,139,333	3,175,440	1,344,450	1,850,511	2,986,200	3,166,000	73,982,070
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,069
July:	Month	16,093,322	16,430,058	33,837,213	3,089,332	1,287,585	1,715,730	2,905,909	3,241,000	78,580,673
	Daily average	519,139	529,680	1,091,200	99,672	41,535	55,345	93,739	107,774	2,533,076
August:	Month	15,468,984	9,517,279	32,279,816	3,141,323	1,165,569	1,584,444	2,807,143	3,167,000	69,331,558
	Daily average	505,451	307,009	1,041,284	101,333	37,599	51,111	90,553	102,161	2,236,502
September:	Month	15,180,610	7,946,580	28,981,525	3,147,030	1,128,380	1,641,284	2,761,230	3,632,000	64,429,039
	Daily average	506,020	264,886	966,051	104,901	37,946	54,713	92,041	121,067	2,180,968
October:	Month	15,681,982	13,961,893	30,735,173	3,177,044	1,172,389	1,822,255	2,797,597	3,900,000	73,193,356
	Daily average	504,903	417,806	991,134	102,486	37,819	58,782	90,247	125,807	2,328,978
November:	Month	14,937,700	16,430,730	28,860,561	3,121,670	1,130,700	1,851,577	2,706,899	3,639,000	72,748,236
	Daily average	499,723	547,491	965,018	104,389	37,690	61,719	90,213	121,300	2,424,946
December:	Month	15,560,934	16,598,399	27,787,651	3,198,642	1,052,148	1,971,817	2,816,759	3,645,000	72,641,306
	Daily average	501,967	535,429	903,860	103,182	34,908	63,607	90,863	117,581	2,343,268
1932—										
January:	Month	15,522,141	13,695,936	25,744,105	3,169,347	1,064,335	1,696,017	2,822,023	3,586,000	67,290,004
	Daily average	501,037	446,306	830,455	102,237	34,335	54,710	91,033	115,677	2,170,647
Total 12 months		187,375,425	174,549,881	334,333,488	38,693,210	15,115,327	22,417,516	34,248,599	41,022,000	848,254,946
Daily average		514,727	478,219	916,979	106,009	41,413	61,418	93,831	112,389	2,322,984